



# Motor / Actuator Drivers

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# DC Brush Motor Drivers

## 7V Max. H-Bridge Drivers

Part No.	ch	Supply Voltage (V)	Output Current (A)	Input Threshold Voltage		Output ON Resistance( $\Omega$ Typ.)	Output Modes	Package
				H Level(V)	L Level(V)			
BD6210F	1	3.0 to 5.5	0.5	2.0 or more	0.8 or less	1.0	Forward/Reverse/Standby(Idler)/Brake	SOP8
BD6210HFP			HRP7					
BD6211F			1.0					SOP8
BD6211HFP			1.0					HRP7
BD6212FP			2.0					HSOP25
BD6212HFP			2.0					HRP7

## 18V Max. H-Bridge Drivers

BD6220F	1	6.0 to 15.0	0.5	2.0 or more	0.8 or less	1.5	Forward/Reverse/Standby(Idler)/Brake	SOP8
BD6221F			1.0					SOP8
BD6222FP			2.0					HSOP25
BD6222HFP			2.0					HRP7
BD6225FP	2		0.5			1.5		HSOP25
BD6226FP			1.0					HSOP25

## 36V Max. H-Bridge Drivers

BD6230F	1	6.0 to 32.0	0.5	2.0 or more	0.8 or less	1.5	Forward/Reverse/Standby(Idler)/Brake	SOP8
BD6231F			1.0					SOP8
BD6231HFP			2.0					HRP7
BD6232FP			2.0					HSOP25
BD6232HFP			2.0					HRP7
BD6236FP	2		1.0			1.5		HSOP25
BD6236FM			2.0					HSOP-M28
BD6237FM			2.0					HSOP-M28
BD62110AEFJ	1	8.0 to 28.0	1.0			1.8		HTSOP-J8

## 40V/60V Max. H-Bridge Drivers

Part No.	Maximum Voltage (V)	Supply Voltage (V)	Output Current (A)	ch	Output ON Resistance (upper + lower)( $\Omega$ Typ.)	Output Modes	Operating Temperature (°C)	Package	Automotive Grade	AEC-Q100
BD16933EFV-C	60	7.0 to 36.0	1	1.5	1.81	Available to select High, Low or Hi-Z Output by each Output terminal.	-40 to +125	HTSSOP-B20	YES	YES
BD16922EFV-M	60	8.0 to 36.0	1	2	2.25	Forward / Reverse / Standby / Brake	-40 to +110	HTSSOP-B24	YES	YES
BD16936EFV-M	60	8.0 to 36.0	1	3	2.1	Available to select High, Low or Hi-Z Output by each Output terminal.	-40 to +110	HTSSOP-B28	YES	YES
<b>New</b> BD16950EFV-C	40	5.5 to 40	-	1	-	Available to select High, Low or Hi-Z Output by each Output terminal.	-40 ~ +125	HTSSOP-B24	YES	YES
<b>New</b> BD16938EFV-C	40	6.3 to 32	-	4	1.4	Available to select High, Low or Hi-Z Output by each Output terminal.	-40 ~ +125	HTSSOP-B28	YES	YES

## H-Bridge Drivers High-Current Series

Part No.	ch	Supply Voltage (V)	Output Current (A)	Input Threshold Voltage		Output ON Resistance( $\Omega$ Typ.)	Output Modes	Package
				H Level(V)	L Level(V)			
BD62222HFP	1	6.0 to 27.0	2.5	2.0 or more	0.8 or less	1.0	Forward/Reverse/Standby(Idler)/Brake	HRP7
BD62321HFP		6.0 to 32.0	3.0					

## H-Bridge Drivers High-Speed Series

BD65491FV	1	1.8 to 16.0	1.2 peak4.0	1.45 or more	0.5 or less	0.35	Forward/Reverse/Standby(Idler)/Brake	SSOP-B16
BD65492MUV	2	1.8 to 16.0	1.0	1.45 or more	0.5 or less	0.9	Forward/Reverse/Standby(Idler)/Brake	VQFN024V4040
BD65494MUV	1	2.0 to 9.0	1.0 peak2.5	2.0 or more	0.7 or less	0.55	Forward/Reverse/Standby(Idler)/Brake	VQFN016V3030
BD65496MUV	1	1.8 to 16.0	1.2 peak5.0	1.45 or more	0.5 or less	0.35	Forward/Reverse/Standby(Idler)/Brake	VQFN024V4040
BD6376GUL	1	2.0 to 9.0	1.0	2.0 or more	0.7 or less	0.45	Forward/Reverse/Standby(Idler)/Brake	VCSP50L1
BD6736FV	1	2.0 to 9.0	1.0 peak3.2	2.0 or more	0.7 or less	0.35	Forward/Reverse/Standby(Idler)/Brake	SSOP-B20
BD6735FV	2	2.0 to 8.0	1.0	2.0 or more	0.7 or less	1.0	Forward/Reverse/Standby(Idler)/Brake	SSOP-B20
<b>New</b> BD63565EFV	2	1.8 to 16.0	1.0	1.45 or more	0.5 or less	0.9	Forward/Reverse/Standby(Idler)/Brake	HTSSOP-B20
<b>New</b> BD63573NUV	1	2.0 to 16.0	1.2 peak3.2	1.45 or more	0.5 or less	0.38	Forward/Reverse/Standby(Idler)/Brake	VSON010V3030

## 1.0A Reversible Motor Drivers(Single Motor)

Part No.	Supply Voltage (V)	Output Current (A)	Input Threshold Voltage		Output Saturation Voltage (V Typ.)	Output Modes	Package
			H Level(V)	L Level(V)			
BA6287F	4.5 to 15	1.0	2.0 or more	0.8 or less	1.0 (I <sub>o</sub> =0.2A)	Forward/Reverse/Idler/Brake	SOP8
BA6285FS	4.5 to 15	1.0	2.0 or more	0.8 or less	1.0 (I <sub>o</sub> =0.2A)	Forward/Reverse/Idler/Brake	SSOP-A16
BA6285AFP-Y	4.5 to 24	1.0	2.0 or more	0.8 or less	1.0 (I <sub>o</sub> =0.2A)	Forward/Reverse/Idler/Brake	HSOP25
BA6920FP-Y	6.5 to 34	1.0	3.0 or more	0.8 or less	2.2 (I <sub>o</sub> =0.02A)	Forward/Reverse/Idler/Brake	HSOP25

- ▶ DC Brush Motor Drivers ▶▶ 2.0A or More Reversible Motor Driver(Single Motor)
  - ▶▶ 1.0A or More Reversible Motor Driver(2 Motors)
- ▶ Stepper Motor Drivers ▶▶ High Performance, High Reliability 36V Stepper Motor Drivers

2.0A or More Reversible Motor Driver(Single Motor)							
Part No.	Supply Voltage (V)	Output Current (A)	Input Threshold Voltage		Output Saturation Voltage (V Typ.)	Output Modes	Package
			H Level(V)	L Level(V)			
BA6219BFP-Y	8 to 18	2.2	3.0 or more	1.0 or less	2.4 (I <sub>o</sub> =0.4A)	Forward/Reverse/Idle/Brake	HSOP25
1.0A or More Reversible Motor Driver(2 Motors)							
BA6247FP-Y	8 to 18	1.0	3.5 or more	1.0 or less	2.4 (I <sub>o</sub> =0.5A)	Forward/Reverse/Brake	HSOP25

# Stepper Motor Drivers

High Performance, High Reliability 36V Stepper Motor Drivers For PPCs, MFPs, Industrial equipments etc.

BD63730EFV	CLK PARA	Iomax 3.0A	UNSTEP	Constant Current PWM	FWRW	DECAY SW	Thin PKG	Small Power Package	FUNCTION COMPATIBLE	5-PIN UNIVERSAL	ONE POWER	T.S.D.	O.C.P.	UV	OVL	4kV	ESD	Short Protection	Protection
BD6387EFV	CLK PARA	Iomax 2.0A	UNSTEP	Constant Current PWM	FWRW	DECAY SW	Thin PKG	Small Power Package	FUNCTION COMPATIBLE	5-PIN UNIVERSAL	ONE POWER	T.S.D.	O.C.P.	UV	OVL	6kV	ESD	Short Protection	Protection
BD6385EFV	CLK PARA	Iomax 1.5A	UNSTEP	Constant Current PWM	FWRW	DECAY SW	Thin PKG	Small Power Package	FUNCTION COMPATIBLE	5-PIN UNIVERSAL	ONE POWER	T.S.D.	O.C.P.	UV	OVL	6kV	ESD	Short Protection	Protection
BD6383EFV	CLK PARA	Iomax 1.0A	UNSTEP	Constant Current PWM	FWRW	DECAY SW	Thin PKG	Small Power Package	FUNCTION COMPATIBLE	5-PIN UNIVERSAL	ONE POWER	T.S.D.	O.C.P.	UV	OVL	6kV	ESD	Short Protection	Protection
BD6389FM	CLK PARA	Iomax 2.2A	UNSTEP	Constant Current PWM	FWRW	DECAY SW	Thin PKG	Small Power Package	FUNCTION COMPATIBLE	5-PIN UNIVERSAL	ONE POWER	T.S.D.	O.C.P.	UV	OVL	6kV	ESD	Short Protection	Protection
BD68720EFV	PARA	Iomax 2.0A	UNSTEP	Constant Current PWM	FWRW	DECAY SW	Thin PKG	Small Power Package	FUNCTION COMPATIBLE	5-PIN UNIVERSAL	ONE POWER	T.S.D.	O.C.P.	UV	OVL	6kV	ESD	Short Protection	Protection
BD68715EFV	PARA	Iomax 1.5A	UNSTEP	Constant Current PWM	FWRW	DECAY SW	Thin PKG	Small Power Package	FUNCTION COMPATIBLE	5-PIN UNIVERSAL	ONE POWER	T.S.D.	O.C.P.	UV	OVL	6kV	ESD	Short Protection	Protection
BD68710EFV	PARA	Iomax 1.0A	UNSTEP	Constant Current PWM	FWRW	DECAY SW	Thin PKG	Small Power Package	FUNCTION COMPATIBLE	5-PIN UNIVERSAL	ONE POWER	T.S.D.	O.C.P.	UV	OVL	6kV	ESD	Short Protection	Protection
BD63725BEFV	CLK PARA	Iomax 2.5A	UNSTEP	Constant Current PWM	FWRW	DECAY SW	Thin PKG	Small Power Package	FUNCTION COMPATIBLE	5-PIN UNIVERSAL	ONE POWER	T.S.D.	O.C.P.	UV	OVL	6kV	ESD	Short Protection	Protection
BD63720AEFV	CLK PARA	Iomax 2.0A	UNSTEP	Constant Current PWM	FWRW	DECAY SW	Thin PKG	Small Power Package	FUNCTION COMPATIBLE	5-PIN UNIVERSAL	ONE POWER	T.S.D.	O.C.P.	UV	OVL	6kV	ESD	Short Protection	Protection
BD63715AEFV	CLK PARA	Iomax 1.5A	UNSTEP	Constant Current PWM	FWRW	DECAY SW	Thin PKG	Small Power Package	FUNCTION COMPATIBLE	5-PIN UNIVERSAL	ONE POWER	T.S.D.	O.C.P.	UV	OVL	6kV	ESD	Short Protection	Protection
BD63710AEFV	CLK PARA	Iomax 1.0A	UNSTEP	Constant Current PWM	FWRW	DECAY SW	Thin PKG	Small Power Package	FUNCTION COMPATIBLE	5-PIN UNIVERSAL	ONE POWER	T.S.D.	O.C.P.	UV	OVL	6kV	ESD	Short Protection	Protection
BD63910MUV	CLK PARA	Iomax 1.0A	UNSTEP	Constant Current PWM	FWRW	DECAY SW	Thin PKG	Small Power Package	FUNCTION COMPATIBLE	5-PIN UNIVERSAL	ONE POWER	T.S.D.	O.C.P.	UV	OVL	6kV	ESD	Short Protection	Protection
BD63920MUV	CLK PARA	Iomax 2.0A	UNSTEP	Constant Current PWM	FWRW	DECAY SW	Thin PKG	Small Power Package	FUNCTION COMPATIBLE	5-PIN UNIVERSAL	ONE POWER	T.S.D.	O.C.P.	UV	OVL	6kV	ESD	Short Protection	Protection

\* 1 The BD6387EFV, BD6385EFV, BD6383EFV, and BD6389FM are all function-compatible. \* 2 The BD6387EFV, BD6385EFV, and BD6383EFV are all pin-compatible.  
 \* 3 The BD63876EFV, BD63874EFV, and BD63872EFV are all function-compatible. \* 4 The BD63876EFV, BD63874EFV, and BD63872EFV are all pin-compatible.  
 \* 5 The BD63720AEFV, BD63715AEFV, and BD63710AEFV are all function-compatible. \* 6 The BD63720AEFV, BD63715AEFV, and BD63710AEFV are all pin-compatible.

Part No.	Supply Voltage(V)	Output Current (A)	Circuit Current (mA)	Input Threshold Voltage		Output ON Resistance (Ω)	Package
	V <sub>cc</sub>			High Level Voltage(V)	Low Level Voltage(V)		
BD63730EFV	19 to 28	3.0	2.0	2.0	0.8	0.4	HTSSOP-B54
BD6387EFV	10 to 28	2.0	4.5	2.0	0.8	0.8	HTSSOP-B40
BD6385EFV	10 to 28	1.5	4.5	2.0	0.8	1.0	HTSSOP-B40
BD6383EFV	10 to 28	1.0	4.5	2.0	0.8	1.5	HTSSOP-B40
BD6389FM	10 to 28	2.2	4.5	2.0	0.8	0.7	HSOP-M36
BD68720EFV	19 to 28	2.0	2.0	2.0	0.8	0.65	HTSSOP-B28
BD68715EFV	19 to 28	1.5	2.0	2.0	0.8	0.95	HTSSOP-B28
BD68710EFV	19 to 28	1.0	2.0	2.0	0.8	1.2	HTSSOP-B28
BD63725BEFV	8 to 28	2.5	2.0	2.0	0.8	0.35	HTSSOP-B28
BD63720AEFV	19 to 28	2.0	2.0	2.0	0.8	0.65	HTSSOP-B28
BD63715AEFV	19 to 28	1.5	2.0	2.0	0.8	0.95	HTSSOP-B28
BD63710AEFV	19 to 28	1.0	2.0	2.0	0.8	1.2	HTSSOP-B28
<b>New</b> BD63910MUV	8 to 28	1.0	2.5	2.0	0.8	1.3	VQFN028V5050
<b>New</b> BD63920MUV	8 to 28	2.0	2.5	2.0	0.8	0.49	VQFN028V5050

<b>Symbol Key</b>	<b>CLK</b> Control signal input CLK-IN type	<b>PARA</b> Control signal input PARALLEL-IN type	<b>Iomax 1.0A</b> Maximum output current	<b>Iomax 1.5A</b>	<b>Iomax 2.0A</b>	<b>Iomax 2.2A</b>	<b>Iomax 2.5A</b>	<b>Iomax 3.0A</b>	<b>UNSTEP</b> Number of step	<b>Constant Current PWM</b> Constant-current PWM	<b>FWRW</b> Switch able between forward and reverse	<b>ONE POWER</b> 1 power supply system due to built-in regulator	<b>T.S.D.</b> Built-in thermal shut-down circuit
<b>DECAY SW</b> SLOW/FAST/MIX DECA switching function	<b>Thin PKG</b> Thin package	<b>Small Power Package</b> Small power package	<b>FUNCTION COMPATIBLE</b> Function-compatible	<b>5-PIN UNIVERSAL</b> Easy replacement pin compatible with competitor's	<b>UV</b> Built-in under voltage lock out circuit	<b>OVL</b> Built-in over voltage lock out circuit	<b>4kV 6kV</b> ESD resistance	<b>Short Protection</b> Adjacent pin short protection	<b>Inverse mounting Protection</b> Inverse mounting protection				

## Standard 36V Stepper Motor Drivers

<b>BD6395FP</b>	PARAMETER I <sub>max</sub> 1.5A UNISTEP	Current PWM, Small Size PowerPack, ONB POWER, T.S.D., O.C.P., UV, OVLO, 4kV, FUNCTION COMPATIBLE, EPINE
<b>BD6393FP</b>	PARAMETER I <sub>max</sub> 1.2A UNISTEP	Current PWM, Small Size PowerPack, ONB POWER, T.S.D., O.C.P., UV, OVLO, 4kV, FUNCTION COMPATIBLE, EPINE
<b>BD68620EFV</b>	PARAMETER I <sub>max</sub> 2.0A UNISTEP	Current PWM, Thin PKG, Small Size PowerPack, ONB POWER, T.S.D., O.C.P., UV, OVLO, FUNCTION COMPATIBLE, EPINE
<b>BD68610EFV</b>	PARAMETER I <sub>max</sub> 1.0A UNISTEP	Current PWM, Thin PKG, Small Size PowerPack, ONB POWER, T.S.D., O.C.P., UV, OVLO, FUNCTION COMPATIBLE, EPINE
<b>BD6290EFV</b>	PARAMETER I <sub>max</sub> 0.8A UNISTEP	Current PWM, Thin PKG, Small Size PowerPack, ONB POWER, T.S.D., O.C.P., UV, OVLO, 4kV, FUNCTION COMPATIBLE, EPINE
<b>BD63960EFV</b>	PARAMETER I <sub>max</sub> 1.5A UNISTEP	Current PWM, Thin PKG, Small Size PowerPack, ONB POWER, T.S.D., O.C.P., UV, OVLO, 4kV, Short Protection, FUNCTION COMPATIBLE, EPINE
<b>BD63940EFV</b>	PARAMETER I <sub>max</sub> 1.2A UNISTEP	Current PWM, Thin PKG, Small Size PowerPack, ONB POWER, T.S.D., O.C.P., UV, OVLO, 4kV, Short Protection, FUNCTION COMPATIBLE, EPINE
<b>BD63620AEFV</b>	CLK IN I <sub>max</sub> 2.0A UNISTEP	Current PWM, Thin PKG, Small Size PowerPack, ONB POWER, T.S.D., O.C.P., UV, OVLO, Short Protection, FUNCTION COMPATIBLE, EPINE
<b>BD63610AEFV</b>	CLK IN I <sub>max</sub> 1.0A UNISTEP	Current PWM, Thin PKG, Small Size PowerPack, ONB POWER, T.S.D., O.C.P., UV, OVLO, Short Protection, FUNCTION COMPATIBLE, EPINE
<b>BD63801EFV</b>	CLK IN I <sub>max</sub> 0.8A UNISTEP	Current PWM, Thin PKG, Small Size PowerPack, ONB POWER, T.S.D., O.C.P., UV, OVLO, 4kV, Short Protection, FUNCTION COMPATIBLE, EPINE

\*1 The BD6395FP, BD6393FP, and BD6290EFV are all function-compatible. \*2 The BD6395FP and BD6393FP are all pin-compatible.  
 \*3 The BD63620AEFV, BD63610AEFV, and BD63801EFV are all function-compatible. \*4 The BD63960EFV and BD63940EFV are all pin-compatible.

Part No.	Supply Voltage(V)		Output Current (A)	Circuit Current (mA)	Input Threshold Voltage		Output ON Resistance (Ω)	Package
	V <sub>cc</sub>	V <sub>m</sub>			High Level Voltage(V)	Low Level Voltage(V)		
BD6395FP	16 to 28		1.5	3.0	2.0	0.8	1.2	HSOP25
BD6393FP	16 to 28		1.2	3.0	2.0	0.8	1.5	HSOP25
BD68620EFV	19 to 28		2.0	1.3	2.0	0.8	0.95	HTSSOP-B24
BD68610EFV	19 to 28		1.0	1.3	2.0	0.8	1.8	HTSSOP-B20
BD6290EFV	19 to 28		0.8	3.0	2.0	0.8	2.8	HTSSOP-B24
BD63960EFV	19 to 28		1.5	2.7	2.0	0.8	1.1	HTSSOP-B24
BD63940EFV	19 to 28		1.2	2.7	2.0	0.8	1.4	HTSSOP-B24
BD63620AEFV	19 to 28		2.0	1.3	2.0	0.8	0.95	HTSSOP-B24
BD63610AEFV	19 to 28		1.0	1.3	2.0	0.8	1.8	HTSSOP-B20
BD63801EFV	19 to 28		0.8	2.7	2.0	0.8	2.8	HTSSOP-B24

## Microstep 36V Stepper Motor Drivers

<b>BD63860EFV</b>	CLK IN I <sub>max</sub> 2.5A UNISTEP	Current PWM, FWRW, DECAN SW, Thin PKG, Small Size PowerPack, ONB POWER, T.S.D., O.C.P., UV, OVLO
<b>BD63847EFV</b>	CLK IN I <sub>max</sub> 2.0A UNISTEP	Current PWM, FWRW, Thin PKG, Small Size PowerPack, FUNCTION COMPATIBLE, EPINE, ONB POWER, T.S.D., O.C.P., UV, OVLO
<b>BD63843EFV</b>	CLK IN I <sub>max</sub> 1.0A UNISTEP	Current PWM, FWRW, Thin PKG, Small Size PowerPack, FUNCTION COMPATIBLE, EPINE, ONB POWER, T.S.D., O.C.P., UV, OVLO
<b>BD63510AEFV</b>	CLK IN I <sub>max</sub> 1.0A UNISTEP	Current PWM, FWRW, Thin PKG, Small Size PowerPack, FUNCTION COMPATIBLE, EPINE, ONB POWER, T.S.D., O.C.P., UV, OVLO
<b>BD63511EFV</b>	CLK IN I <sub>max</sub> 1.0A UNISTEP	Current PWM, FWRW, Thin PKG, Small Size PowerPack, FUNCTION COMPATIBLE, EPINE, ONB POWER, T.S.D., O.C.P., UV, OVLO
<b>BD63520AEFV</b>	CLK IN I <sub>max</sub> 2.0A UNISTEP	Current PWM, FWRW, Thin PKG, Small Size PowerPack, FUNCTION COMPATIBLE, EPINE, ONB POWER, T.S.D., O.C.P., UV, OVLO
<b>BD63521EFV</b>	CLK IN I <sub>max</sub> 2.0A UNISTEP	Current PWM, FWRW, Thin PKG, Small Size PowerPack, FUNCTION COMPATIBLE, EPINE, ONB POWER, T.S.D., O.C.P., UV, OVLO
<b>BD63524AEFV</b>	CLK IN I <sub>max</sub> 2.5A UNISTEP	Current PWM, FWRW, Thin PKG, Small Size PowerPack, FUNCTION COMPATIBLE, EPINE, ONB POWER, T.S.D., O.C.P., UV, OVLO
<b>BD63525AEFV</b>	CLK IN I <sub>max</sub> 2.5A UNISTEP	Current PWM, FWRW, Thin PKG, Small Size PowerPack, FUNCTION COMPATIBLE, EPINE, ONB POWER, T.S.D., O.C.P., UV, OVLO

\*1 The BD63847EFV and BD63843EFV are all function-compatible. \*2 The BD63510AEFV, BD63520AEFV and BD63525AEFV are all function-compatible.  
 \*3 The BD63511AEFV and BD63521AEFV are all function-compatible.

Part No.	Supply Voltage(V)		Output Current (A)	Circuit Current (mA)	Input Threshold Voltage		Output ON Resistance (Ω)	Package
	V <sub>cc</sub>	V <sub>m</sub>			High Level Voltage(V)	Low Level Voltage(V)		
BD63860EFV	16 to 28		2.5	4.0	2.0	0.8	0.8	HTSSOP-B28
BD63847EFV	19 to 28		2.0	2.5	2.0	0.8	0.85	HTSSOP-B28
BD63843EFV	19 to 28		1.0	2.5	2.0	0.8	1.9	HTSSOP-B28
<b>New</b> BD63510AEFV	8 to 28		1.0	2.5	2.0	0.8	1.75	HTSSOP-B28
<b>New</b> BD63511EFV	8 to 28		1.0	2.5	2.0	0.8	1.75	HTSSOP-B28
<b>New</b> BD63520AEFV	8 to 28		2.0	2.5	2.0	0.8	0.65	HTSSOP-B28
<b>New</b> BD63521EFV	8 to 28		2.0	2.5	2.0	0.8	0.65	HTSSOP-B28
<b>New</b> BD63524AEFV	8 to 28		2.5	2.5	2.0	0.8	0.35	HTSSOP-B28
<b>New</b> BD63525AEFV	8 to 28		2.5	2.5	2.0	0.8	0.35	HTSSOP-B28

## Low Voltage Stepper Motor Drivers for Mini and Handheld Printers

<b>BD6382EFV</b>	PARAMETER I <sub>max</sub> 0.8A UNISTEP	Current PWM, Thin PKG, Small Size PowerPack, T.S.D., O.C.P., UV, 4kV, Short Protection, 0 JMA, FUNCTION COMPATIBLE, EPINE, -40~+85
<b>BD6381EFV</b>	PARAMETER I <sub>max</sub> 1.2A UNISTEP	Current PWM, Thin PKG, Small Size PowerPack, T.S.D., O.C.P., UV, 4kV, Short Protection, 0 JMA, FUNCTION COMPATIBLE, EPINE
<b>BD6380EFV</b>	PARAMETER I <sub>max</sub> 0.8A UNISTEP	Current PWM, Thin PKG, Small Size PowerPack, T.S.D., O.C.P., UV, 4kV, Short Protection, 0 JMA, FUNCTION COMPATIBLE, EPINE

Part No.	Supply Voltage(V)		Output Current (A)	Circuit Current (mA)	Input Threshold Voltage		Output ON Resistance (Ω)	Package
	V <sub>cc</sub>	V <sub>m</sub>			High Level Voltage(V)	Low Level Voltage(V)		
BD6382EFV	3.0 to 5.5	5.5 to 13.5	0.8	1.6	2.0	0.8	1.2	HTSSOP-B24
BD6381EFV	2.5 to 5.5	6.0 to 13.5	1.2	1.6	2.0	0.8	1.0	HTSSOP-B24
BD6380EFV	2.5 to 5.5	4.0 to 13.5	0.8	1.6	2.0	0.8	1.2	HTSSOP-B24

Symbol Key

- CLK IN: Control signal input CLK-IN type
- PARAMETER: Control signal input PARALLEL-IN type
- I<sub>max</sub> 0.8A, 1.0A, 1.2A, 1.5A, 2.0A, 2.5A: Maximum output current
- Current PWM: Constant-current PWM
- Thin PKG: Thin package
- FWRW: Switch able between forward and reverse
- Small Size PowerPack: Small power package
- DECAN SW: SLOW/FAST/MIX DECAV switching function
- UNISTEP, 1/2STEP, 1/4STEP, 1/8STEP: Number of step
- 36V MAX, 60V MAX: Voltage resistance
- ONB POWER: 1 power supply system due to built-in regulator
- T.S.D.: Built-in thermal shut-down circuit
- O.C.P.: Built-in over current protection circuit
- FUNCTION COMPATIBLE: Function-compatible
- UV LO: Built-in under voltage lock out circuit





**45V Stepper Motor Drivers**

**BD6425EFV**



**BD6423EFV**



**BD6422EFV**



Part No.	Supply Voltage(V)	Output Current (A)	Circuit Current (mA)	Input Threshold Voltage		Output ON Resistance (Ω)	Package
	V <sub>CC</sub>			High Level Voltage(V)	Low Level Voltage(V)		
<b>BD6425EFV</b>	19 to 42	1.5	2.0	2.0	0.8	1.1	HTSSOP-B28
<b>BD6423EFV</b>	19 to 42	1.0	2.0	2.0	0.8	2.0	HTSSOP-B24
<b>BD6422EFV</b>	19 to 42	1.0	2.0	2.0	0.8	2.0	HTSSOP-B24

**3-Phase Brushless Motor Drivers**

**3-Phase Brushless Motor Pre-Driver with Speed Control**

**BD6762FV**



Part No.	Max. Voltage (V)	Supply Voltage (V)	Operating Temperature (°C)	Circuit Current (mA)	Input Threshold Voltage		External FET Drive Voltage		PWM Frequency (kHz)	Package
					H Level(V)	L Level(V)	Upper(V)	Lower(V)		
<b>BD6762FV</b>	36	16.0 to 28.0	-25 to +75	17.0	2.2	0.8	V <sub>CC</sub> +6.8	10.8	16	SSOP-B40

**3-Phase Brushless Motor Driver with Speed Control**

**BD67929EFV**



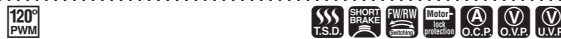
Part No.	Max. Voltage (V)	Supply Voltage (V)	Operating Temperature (°C)	Circuit Current (mA)	Input Threshold Voltage		External FET Drive Voltage		PWM Frequency (kHz)	Package
					H Level(V)	L Level(V)	Upper(V)	Lower(V)		
<b>BD67929EFV</b>	36	19 to 28	-25 to +85	4.0	3.0	1.5	-	-	200	HTSSOP-B28

**3-Phase Brushless Motor Pre-Drivers**

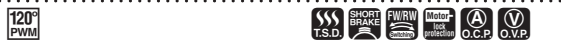
**BD6761FS**



**BD63001AMUV**



**BD63002AMUV**



**BD16805FV-M**



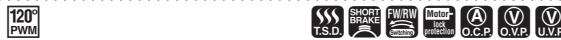
Part No.	Max. Voltage (V)	Supply Voltage (V)	Operating Temperature (°C)	Circuit Current (mA)	Input Threshold Voltage		External FET Drive Voltage		PWM Frequency (kHz)	Package	Automotive Grade AEC-Q100
					H Level(V)	L Level(V)	Upper(V)	Lower(V)			
<b>BD6761FS</b>	36	16.0 to 28.0	-35 to +75	15.0	2.2	0.8	V <sub>CC</sub> +6	10.5	15	SSOP-A32	
<b>BD63001AMUV</b>	33	4.5 to 5.5, 6.0 to 28	-40 to +85	2.5	2.0	0.8	V <sub>CC</sub> -0.2	9.5	20	VQFN024V4040	
<b>BD63002AMUV</b>	30	8.0 to 26.4	-40 to +85	2.5	2.0	0.8	V <sub>CC</sub> +7	5	External IN	VQFN028V5050	
Part No.	Max. Voltage (V)	Supply Voltage (V)	Operating Temperature (°C)	Circuit Current (mA)	Input Threshold Voltage		External FET Drive Voltage V <sub>CC</sub> =8V		PWM Frequency (kHz)	Package	Automotive Grade AEC-Q100
<b>BD16805FV-M</b>	60	8 to 18	-40 to +110	15.2	H Level(V)	L Level(V)	Upper(V)	Lower(V)			

**3-Phase Brushless Motor Drivers**

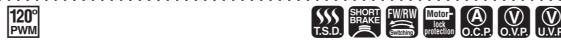
**BD63005AMUV**



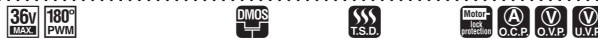
**BD63006MUV**



**BD63007MUV**



**BD63035EFV-M**



Part No.	Max. Voltage (V)	Supply Voltage (V)	Output Current (A)	Operating Temperature (°C)	Circuit Current (mA)	Input Threshold Voltage		Output ON Resistance (Ω)	Package	
						H Level(V)	L Level(V)			
<b>BD63005AMUV</b>	33	10 to 28	2.0	-25 to +85	4.4	2	0.8	0.17	VQFN040V6060	
<b>BD63006MUV</b>	33	8 to 28	1.5	-40 to +85	4.4	-	-	0.8	VQFN024V4040	
<b>BD63007MUV</b>	33	8 to 28	3.0	-25 to +85	4.4	2	0.8	0.17	VQFN040V6060	
Part No.	Max. Voltage (V)	Supply Voltage (V)	Operating Temperature (°C)	Circuit Current (mA)	Input Threshold Voltage		Output ON Resistance (Ω)	PWM Frequency (kHz)	Package	Automotive Grade AEC-Q100
<b>BD63035EFV-M</b>	36	8 to 28	-40 to +105	8	H Level(V)	L Level(V)	0.6			

**New**

Built-in over voltage lock out circuit	Easy replacement pin compatible with competitor's	ESD resistance	Standby current 0µA	Adjacent pin short protection	-40°C to +85°C operating temperature range
External output FET H-side:Nch/L-side:Nch	External output FET H-side:Pch/L-side:Nch	DIMOS output	Built-in FG Amp.	Built-in hysteresis Amp.	High RPM-compatible
Built-in motor lock-up protection circuit	Built-in over voltage protection circuit	Built-in under voltage protection circuit		Built-in short brake	No-CLOCK input detection function

# Fan Motor Drivers

## 5V Single-Phase Full-wave Fan Motor Drivers

<b>BH6766FVM</b>						
<b>BD6965NUX</b>						
<b>BD6966NUX</b>						
<b>BU6909AGFT</b>						
<b>BU69090NUX</b>						

Part No.	Supply Voltage (V)	I <sub>o</sub> Max. (mA)	Power Tr.	Output Saturation Voltage (V)	Speed Control	Hall Bias Voltage (V)	Lock Time Ratio	Package
BH6766FVM	2.0 to 6.0	630	CMOS	Upper and Lower 0.6(I <sub>o</sub> =250mA)	—	1.3	—	MSOP8
BD6965NUX	2.0 to 5.5	800	CMOS	Upper and Lower 0.4(I <sub>o</sub> =250mA)	Direct PWM	—	1 : 10	VSON008X2030
BD6966NUX	1.8 to 5.5	1,000	CMOS	Upper and Lower 0.4(I <sub>o</sub> =300mA)	Direct PWM	1.0	1 : 10	VSON1010X3030
BU6909AGFT	1.8 to 5.5	800	CMOS	Upper and Lower 0.16(I <sub>o</sub> =200mA)	Direct PWM	Include Hall sensor	1 : 10	TSSOF6
<b>New</b> BU69090NUX	1.8 to 5.5	800	CMOS	Upper and Lower 0.16(I <sub>o</sub> =200mA)	Direct PWM	Include Hall sensor	1 : 10	VSON008X2030

## Standard Single-Phase Full-wave Fan Motor Drivers

<b>BD6981FVM</b>						
<b>BD6982FVM</b>						
<b>BD6967FVM</b>						
<b>BD6968FVM</b>						
<b>BD6962FVM</b>						
<b>BD6964FVM</b>						
<b>BD6961F</b>						
<b>BD6964F</b>						
<b>BD69830FV</b>						

Part No.	Supply Voltage (V)	I <sub>o</sub> Max. (mA)	Power Tr.	Output Saturation Voltage (V)	Speed Control	Hall Bias Voltage (V)	Lock Time Ratio	Package
BD6981FVM	2.8 to 16.0	800	DMOS	Upper and Lower 0.45(I <sub>o</sub> =200mA)	—	1.2	1 : 6	MSOP8
BD6982FVM	2.8 to 16.0	800	DMOS	Upper and Lower 0.45(I <sub>o</sub> =200mA)	—	1.2	1 : 6	MSOP8
BD6967FVM	3.3 to 14.0	800	DMOS	Upper and Lower 0.45(I <sub>o</sub> =200mA)	DC/Direct PWM	1.2	1 : 10	MSOP10
BD6968FVM	3.3 to 14.0	800	DMOS	Upper and Lower 0.45(I <sub>o</sub> =200mA)	DC/Direct PWM	1.2	1 : 10	MSOP10
BD6962FVM	3.3 to 14.0	800	DMOS	Upper and Lower 0.4(I <sub>o</sub> =300mA)	Direct PWM	—	1 : 10	MSOP8
BD6964FVM	3.3 to 14.0	800	DMOS	Upper and Lower 0.4(I <sub>o</sub> =300mA)	Direct PWM	—	1 : 10	MSOP8
BD6961F	3.3 to 14.0	1,000	DMOS	Upper and Lower 0.4(I <sub>o</sub> =300mA)	Direct PWM	—	1 : 10	SOP8
BD6964F	3.3 to 14.0	1,000	DMOS	Upper and Lower 0.4(I <sub>o</sub> =300mA)	Direct PWM	—	1 : 10	SOP8
BD69830FV	6.0 to 28.0	900	DMOS	Upper and Lower 0.6(I <sub>o</sub> =200mA)	Direct PWM	1.2	1 : 30	SSOP-B14

<b>Symbol Key</b>	5V Power supply compatible	12V Power supply compatible	24V Power supply compatible	250mA Class	300mA Class	350mA Class	400mA Class	450mA Class	800mA Class	PRE DRIVER	This is an indication for the amount of current that can flow into a motor running at fixed speed.	Include Hall Sensor	Small mount type	RPM pulse signal output	Soft switching	Built-in hall element power supply voltage	Rotational speed control possible	External capacitor for detecting motor lock not necessary	Lock alarm signal output
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**Multifunction Single-Phase Full-wave Fan Motor Drivers**

<b>BD6971FV</b>	12V MIN, 350 CLASS, Small Pkg	FG, FULL, SOFT S/W, HALL, LOCK, ALARM, MIN rpm, T.S.D., IO LIMIT
<b>BD6994FV</b>	12V MIN, 350 CLASS, Small Pkg	FG, FULL, SOFT S/W, HALL, LOCK, ALARM, MIN rpm, T.S.D.
<b>BD6995FV</b>	12V MIN, 400 CLASS, Small Pkg	FG, FULL, SOFT S/W, HALL, LOCK, ALARM, MIN rpm, T.S.D., IO LIMIT
<b>BD61243FV</b>	12V MIN, 450 CLASS, Small Pkg	FG, FULL, SOFT S/W, HALL, LOCK, ALARM, MIN rpm, T.S.D., IO LIMIT
<b>BD69730FV</b>	12V MIN, PRE DRIVER, Small Pkg	FG, FULL, SOFT S/W, HALL, LOCK, ALARM, MIN rpm, T.S.D., IO LIMIT, SOFT START
<b>BD69740FV</b>	12V MIN, PRE DRIVER, Small Pkg	SOFT S/W, HALL, LOCK, ALARM, MIN rpm, T.S.D., IO LIMIT, SOFT START
<b>BD61245EFV</b>	12V MIN, 800 CLASS, Small Pkg	FG, FULL, SOFT S/W, LOCK, ALARM, MIN rpm, T.S.D., IO LIMIT, SOFT START
<b>BD61250MUV</b>	12V MIN, PRE DRIVER, Small Pkg	FG, FULL, SOFT S/W, LOCK, ALARM, MIN rpm, T.S.D., IO LIMIT, SOFT START

Part No.	Supply Voltage (V)	Io Max. (mA)	Power Transistor	Output Saturation Voltage (V)	Speed Control	Hall Bias Voltage (V)	Lock Time Ratio	Package
<b>BD6971FV</b>	3.5 to 17.0	1,000	DMOS	Upper and Lower 0.6(Io=200mA)	DC/Direct PWM	1.3	1 : 10	SSOP-B14
<b>BD6994FV</b>	4.5 to 17.0	1,200	DMOS	Upper and Lower 0.6(Io=400mA)	DC/Direct PWM	1.25	1 : 10	SSOP-B16
<b>BD6995FV</b>	4.3 to 17.0	1,200	DMOS	Upper and Lower 0.6(Io=400mA)	DC	1.25	1 : 10	SSOP-B16
<b>BD61243FV</b>	5.5 to 16.0	1,200	DMOS	Upper and Lower 0.4(Io=400mA)	DC/Direct PWM	1.25	1 : 10	SSOP-B14
<b>BD69730FV</b>	4.3 to 17.0	10	Pre-Driver	—	DC/Direct PWM	1.26	1 : 20	SSOP-B16
<b>BD69740FV</b>	4.3 to 17.0	10	Pre-Driver	—	DC/Direct PWM	1.26	1 : 20	SSOP-B16
<b>New</b> <b>BD61245EFV</b>	4.0 to 16.0	1,800	DMOS	Upper and Lower 0.2(Io=400mA)	DC/Direct PWM	—	1 : 10	HTSSOP-B16
<b>New</b> <b>BD61250MUV</b>	4.5 to 36.0	10	Pre-Driver	—	DC/Direct PWM	—	1 : 20	VQFN024V4040

**2-Phase Half-wave Fan Motor Drivers**

<b>BD6701F</b>	24V MIN, 400 CLASS	FG, FULL, LOCK, ALARM, T.S.D., IO LIMIT
<b>BA6406F</b>	24V MIN, PRE DRIVER	LOCK, ALARM
<b>BA6506F</b>	24V MIN, PRE DRIVER	FG, FULL, LOCK
<b>BA6901F</b>	24V MIN, PRE DRIVER	FG, FULL, LOCK, ALARM, T.S.D., IO LIMIT

Part No.	Supply Voltage (V)	Io Max. (mA)	Power Transistor	Output Saturation Voltage (V)	Speed Control	Hall Bias Voltage (V)	Zener Diode Clamp Voltage (V)	Output Clamp Voltage (V)	Lock Time Ratio	Package
<b>BD6701F</b>	6.0 to 28.0	800	DMOS	0.3 (Io=200mA)	—	—	—	54	1 : 10	SOP8
<b>BA6406F</b>	4.0 to 28.0	70	Pre-Driver	—	—	—	—	—	1 : 4.5	SOP8
<b>BA6506F</b>	4.0 to 28.0	70	Pre-Driver	—	—	—	—	—	1 : 4.5	SOP8
<b>BA6901F</b>	3.5 to 28.0	70	Pre-Driver	—	PWM	—	—	—	1 : 10	SOP16

**3-Phase Full-wave Fan Motor Drivers**

<b>BH67173NUX</b>	5V MIN, 400 CLASS, Small Pkg	SENSOR LESS DRIVE, PWM 150, FG, FULL, T.S.D., LOCK, ALARM, IO LIMIT
<b>BD6326NUX</b>	5V MIN, 400 CLASS, Small Pkg	SENSOR LESS DRIVE, PWM 180, FG, FULL, T.S.D., LOCK, ALARM, IO LIMIT
<b>BD63242EFV</b>	12V MIN, 400 CLASS, Small Pkg	SENSOR LESS DRIVE, PWM 180, FG, FULL, T.S.D., LOCK, ALARM, IO LIMIT, MIN rpm
<b>BD63441AFU</b>	12V MIN, PRE DRIVER, Small Pkg	SENSOR LESS DRIVE, PWM 150, FG, FULL, T.S.D., LOCK, ALARM, IO LIMIT, SOFT START, MIN rpm
<b>BD63251MUV</b>	12V MIN, PRE DRIVER, Small Pkg	SENSOR LESS DRIVE, PWM 180, FG, FULL, T.S.D., LOCK, ALARM, IO LIMIT, SOFT START, MIN rpm

Part No.	Supply Voltage (V)	Io Max. (mA)	Power Transistor	Output Saturation Voltage (V)	Speed Control	Hall Bias Voltage (V)	Lock Time Ratio	Package
<b>BH67173NUX</b>	2.2 to 5.5	700	CMOS	Upper and Lower 0.25(Io=250mA)	Direct PWM	—	1 : 5	VSON010X3030
<b>BD6326NUX</b>	2.2 to 5.5	700	CMOS	Upper and Lower 0.25(Io=250mA)	Direct PWM	—	1 : 5	VSON010X3030
<b>New</b> <b>BD63242EFV</b>	5.0 to 16.0	1,000	DMOS	Upper and Lower 0.3(Io=300mA)	DC/Direct PWM	—	1 : 5*	HTSSOP-B16
<b>BD63441AFU</b>	5.5 to 16.0	10	Pre-Drive	—	DC/Direct PWM	—	1 : 10	SSOP-C20
<b>BD63251MUV</b>	5.5 to 15.0	10	Pre-Drive	—	DC/Direct PWM	1.5	1 : 10	VQFN024V4040

\*SOSC terminal connect capacitor is 80pF

Motor lock detection function  
 Motor startup possible low-duty  
 Built-in thermal shut-down circuit  
 Drive method with hall sensor for detecting the rotor position  
 Soft start  
 Output power system  
 Output power system  
 Minimum rotational speed setting  
 Output current limit can be set

## 3-Phase Brushless Fan Motor Drivers For Household Appliances(White goods)

<b>BM6202FS</b>									
<b>BM6203FS</b>									
<b>BM6204FS</b>									
<b>BM6205FS</b>									
<b>BM6206FS</b>									
<b>BM6207FS</b>									
<b>BM6208FS</b>									
<b>BM6209FS</b>									

Part No.	Control	Output Device	Voltage Ratings (V)	Output Current (A)	Output On Resistance(Ω)	Diode Forward Voltage(V)	Package
<b>BM6202FS</b>	6 inputs	PrestoMOS™	600	1.5	2.7	1.1	SSOP-A54_23
<b>BM6203FS</b>	6 inputs	PrestoMOS™	600	2.5	1.7	1.1	SSOP-A54_23
<b>BM6204FS</b>	120°	PrestoMOS™	600	1.5	2.7	1.1	SSOP-A54_36
<b>BM6205FS</b>	120°	PrestoMOS™	600	2.5	1.7	1.1	SSOP-A54_36
<b>BM6206FS</b>	150°	PrestoMOS™	600	1.5	2.7	1.1	SSOP-A54_36
<b>BM6207FS</b>	150°	PrestoMOS™	600	2.5	1.7	1.1	SSOP-A54_36
<b>BM6208FS</b>	180° (Sinusoidal)	PrestoMOS™	600	1.5	2.7	1.1	SSOP-A54_36
<b>BM6209FS</b>	180° (Sinusoidal)	PrestoMOS™	600	2.5	1.7	1.1	SSOP-A54_36

## 3-Phase Brushless Fan Motor Controllers For Household Appliances(White goods)

<b>BD62011AFS</b>						
<b>BD62012AFS</b>						
<b>BD62013AFS</b>						
<b>BD62014AFS</b>						

Part No.	Supply Voltage (V)	Commutation Logic	Control Voltage Range (V)	Phase Control Range (deg)	FG Pulse Number	Hall Bias Switch	Package
<b>BD62011AFS</b>	10.0 to 18.0	180° (Sinusoidal)	2.1 to 5.4	0 to +40	4/12	—	SSOP-A24
<b>BD62012AFS</b>	10.0 to 18.0	150°	2.1 to 5.4	0 to +30	4/12	—	SSOP-A24
<b>BD62013AFS</b>	10.0 to 18.0	150°	2.1 to 5.4	0 to +30	12	✓	SSOP-A24
<b>BD62014AFS</b>	10.0 to 18.0	180° (Sinusoidal)	1.1 to 4.4	0 to +40	4/12	—	SSOP-A24

## Driver for ODD

### 1ch System Motor Driver ICs Wide Application

Part No.	Power Supply (V)	Dynamic Range of Driver Output (V)	I/F Amp.	Mute of Driver Output	Regulator for DSP (V)	Protect Circuit for Low Power Supply	Protect for Abnormal Input	Temp. Protection	Standby Circuit	Package
<b>BD7931F</b>	4.5 to 14.0	7.5(V <sub>CC</sub> =8V, R <sub>L</sub> =500mA)	—	—	—	—	—	✓	✓	SOP8
<b>BH6578FVM</b>	4.5 to 5.5	4.5(V <sub>CC</sub> =5V, R <sub>L</sub> =500mA)	—	—	—	—	—	✓	—	MSOP8

### 2ch to 3ch System Motor Driver IC Actuator Applicable

Part No.	Power Supply (V)	I/F	FOCUS TILT	TRACKING	SLED	LOADING	SPINDLE	Short Circuit Protection Loading	Protect for Pickup	Package
<b>BD8271EFV</b>	4.5 to 14.0	Analog & PWM	1ch	—	2ch STTEPING	—	—	—	—	HTSSOP-B24

### 4ch System Motor Driver ICs Basic Type for CD player

Part No.	Power Supply (V)	I/F	FOCUS TILT	TRACKING	SLED	LOADING	SPINDLE	Short Circuit Protection for Loading	Protect for Pickup	Regulator	Reset	Package	Automotive Grade AEC-Q100
<b>BD8226EFV</b>	5.5 to 14.0	Analog & PWM	1ch	1ch	DC Select input	DC	—	—	—	Variable voltage × 1	—	HTSSOP-B24	—
<b>BD8229EFV</b>	4.5 to 14.0	Analog & PWM	1ch	1ch	DC Select input	DC	—	—	—	1 input 1 output	—	HTSSOP-B24	—
<b>BD8266EFV-M</b>	4.5 to 10.0	Analog & PWM	1ch	1ch	DC Select input	DC	—	Self off	—	—	—	HTSSOP-B24	YES
<b>BD8263EFV-M</b>	4.5 to 10.0	Analog & PWM	1ch	1ch	DC Select input	DC	✓	—	—	—	—	HTSSOP-B28	YES

### 5ch System Motor Driver ICs Loading Channel Added

Part No.	Power Supply (V)	I/F	FOCUS TILT	TRACKING	SLED	LOADING	SPINDLE	Short Circuit Protection for Loading	Protect for Pickup	Regulator	Package	Automotive Grade AEC-Q100
<b>BD8205EFV-M</b>	6.0 to 10.0	Analog & PWM	1ch	1ch	DC	DC	DC	—	—	—	HTSSOP-B24	YES
<b>BD8203EFV</b>	4.5 to 14.0	Analog & PWM	1ch	1ch	DC	DC	DC	—	—	Variable voltage × 1 5V Fixed × 1	HTSSOP-B40	—

<b>Symbol Key</b>	Voltage resistance	Output power system	Maximum output current	Built-in thermal shut-down circuit	Built-in under voltage lock out circuit	Built-in over current protection circuit	Output current limit can be set
	External capacitor for detecting motor lock not necessary	RPM pulse signal output	Built-in hall element power supply voltage				



6ch to 9ch System Motor Driver ICs Basic Type for DVD Player, Blu-ray												
Part No.	Power Supply (V)	I/F	FOCUS TILT	TRACKING	SLED	LOADING	SPINDLE	LVDS for SA	Short Circuit Protection for Loading	Protect for Pickup	Package	Automotive Grade AEC-Q100
<b>BD8255MUV-M</b>	4.5 to 5.5	SPI	1ch	1ch	2ch STTEPING	DC	3-Phase Brushless	—	✓	—	VQFN48SV7070	YES
<b>BD8256EFV-M</b>	4.5 to 10.5	SPI	2ch	1ch	2ch STTEPING	DC	3-Phase Brushless	2ch	✓	Self off	HTSSOP-B54	YES

System Motor Driver ICs for Half Height Drives(Sensorless) Space Saving Type										
Part No.	Supply Voltage (V)	ch	Output System	Output (Ω)	Output Gain	Under Voltage Protection	Overvoltage Protection	Input Abnormality Protection	Temperature Protection	Package
<b>BD7763EFV</b>	4.3 to 5.5	1 to 3ch	PWM	1.5	17.5dB	✓	—	✓	✓	HTSSOP-B54
		4, 5ch	PWM	1.3	17.5dB					
	10.8 to 13.2	6, 7ch	PWM	2.2	1.15A/V					
		8ch	PWM	1.0	1.15A/V					
		9ch	PWM	1.5	—					

System Motor Driver ICs for Slim Drives(3 sensors) Basic Type										
<b>BH5510KV/ BH5510KVT</b>	4.0 to 5.5	1 to 3ch	PWM	1.3	14dB	✓	✓	✓	✓	VQFP48C/ TQFP48V
		4, 5ch	PWM	1.5	14dB					
		6ch	PWM	0.6	1A/V or 0.2A/V					
<b>BH5511KV</b>	4.0 to 5.5	1 to 3ch	PWM	1.3	17.5dB/8.0dB	✓	✓	✓	✓	VQFP48C
		4, 5ch	PWM	1.5	17.5dB					
		6ch	PWM	0.6	0.5A/V or 0.33A/V or 0.17A/V					

## Drivers for Printer

3-Phase Brushless Motor Driver for Polygonal Mirrors For LBP, PPC										
Part No.	Supply Voltage (V)	Output Current (A)	Circuit Current (mA)	Input Threshold Voltage		Current Limit Detect Voltage (V)	ON Resistance (Ω)	Circuit Current When Motor Stop (mA)	PWM Frequency (kHz)	Package
				H Level(V)	L Level(V)					
<b>BD67929EFV</b>	19 to 28	2.5	4.0	3.0	1.5	0.5	1.35 (I <sub>o</sub> =1.0A)	1.0	200	HTSSOP-B28

Motor Drivers with Brush for Printers									
Part No.	Supply Voltage (V)	Output Current (A)	Output Current Peak(A)	Circuit Current (mA)	Input Threshold Voltage		Output ON Resistance (Ω)	Package	
					H Level(V)	L Level(V)			
<b>BD63821EFV</b>	19 to 28	1.0	1.5	2.5	2.0	0.8	1.9(I <sub>o</sub> =0.5A)	HTSSOP-B28	
<b>BD63823EFV</b>	19 to 28	2.0	2.8	2.5	2.0	0.8	0.65(I <sub>o</sub> =1.5A)	HTSSOP-B28	
<b>BD62210AEFV</b>	8 to 28	1.0	1.5	2.5	2.0	0.8	1.9	HTSSOP-B28	
<b>BD62220AEFV</b>	8 to 28	2.0	2.8	2.5	2.0	0.8	0.65	HTSSOP-B28	

Bipolar Stepper Motor Drivers for Paper Feed / Carriage For LBP, PPC, Scanner, Photo, Printer, FAX, IJP Please Refer to Page A69 to A71 General Purpose ICs for The Other Stepper Motor Driver Lineup							
Part No.	Supply Voltage(V)	Output Current (A)	Circuit Current (mA)	Input Threshold Voltage		Output ON Resistance (Ω)	Package
	V <sub>cc</sub>			High Level Voltage(V)	Low Level Voltage(V)		
<b>BD63801EFV</b>	19 to 28	0.8	2.7	2.0	0.8	2.8	HTSSOP-B24
<b>BD68715EFV</b>	19 to 28	1.5	2.0	2.0	0.8	0.95	HTSSOP-B28
<b>BD63715AEFV</b>	19 to 28	1.5	2.0	2.0	0.8	0.95	HTSSOP-B28

3-Phase Brushless Motor Pre-Drivers for Paper Feed For LBP, PPC										
Part No.	Max. Voltage (V)	Supply Voltage (V)	Operating Temperature (°C)	Circuit Current (mA)	Input Threshold Voltage		External Threshold Voltage		PWM Frequency (kHz)	Package
					H Level(V)	L Level(V)	Upper(V)	Lower(V)		
<b>BD6761FS</b>	36	16 to 28	-35 to +75	15.0	2.2	0.8	V <sub>cc</sub> +6	10.5	15	SSOP-A32
<b>BD6762FV</b>	36	16 to 28	-25 to +75	17.0	2.2	0.8	V <sub>cc</sub> +6.8	10.8	16	SSOP-B40

3-Phase Brushless Motor Driver for Polygonal Mirrors For LBP, PPC : Current limit value is calculated by dividing current limit voltage by RNF resistance which is to detect the output current.  
 Motor Drivers with Brush for Printers: The BD63821EFV and BD63823EFV are all pin-compatible. The BD62210AEFV and BD62220AEFV are all pin-compatible.

# Driver for Digital Still Camera

## 5ch System Lens Drivers for Digital Still Cameras

Part No.	Supply Voltage (V)	Driver Output Max. Current (A)	Drive Method Examples of Actuator(Drived Motor, Driving System, and Output ON Resistance(Ω))				Input I/F	Reference Voltage Output For Output Setting Current(V)	Package (mm)
			AF	Zoom	Iris	Shutter			
BD6370GUL	2.7 to 5.5	0.5	ex. 1	STM(1, 2ch) Constant voltage/ FULL ON 1.4	DCM(3ch) Constant voltage/ FULL ON 1.4	DCM or VCM(4ch) Constant voltage/ Constant current/ FULL ON 1.4	VCM(5ch) Constant current 1.4	Parallel + Serial	Output current control using built-in D/A converter
			ex. 2	STM(1, 2ch) Constant voltage/ FULL ON 1.4	STM(1, 2, 3ch) Constant voltage/ FULL ON 1.4	DCM or VCM(4ch) Constant voltage/ Constant current/ FULL ON 1.4	VCM(5ch) Constant current 1.4		
BD6758MWV	2.5 to 5.5	0.8	ex.	STM(1, 2ch) FULL ON 1.2	DCM(3ch) FULL ON 1.2	DCM or VCM(4ch) FULL ON 1.2	VCM(5ch) Constant current 1.0	Parallel	1.2 (±3%)
BD6758KN	2.5 to 5.5	0.8	ex.	STM(1, 2ch) FULL ON 1.2	DCM(3ch) FULL ON 1.2	DCM or VCM(4ch) FULL ON 1.2	VCM(5ch) Constant current 1.0	Parallel	1.2 (±3%)

## 6ch System Lens Drivers for Digital Still Cameras

Part No.	Supply Voltage (V)	Driver Output Max. Current (A)	Drive Method Examples of Actuator(Drived Motor, Driving System, and Output ON Resistance(Ω))					Input I/F	Reference Voltage Output For Output Setting Current(V)	Package (mm)
			AF	Zoom	Iris	Shutter	Barrier			
BD6373GW	2.5 to 5.5	0.8	ex.	STM(1, 2ch) FULL ON 1.2	STM(3, 4ch) FULL ON 1.2	DCM or VCM(5ch) FULL ON 1.2	VCM(6ch) FULL ON 1.2	—	Parallel	—
BD6753KV	4.5 to 10.5 (1, 2ch) 2.0 to 10.5 (3 to 6ch)	0.8	ex.	STM(1, 2ch) FULL ON 1.2	STM(3, 4ch) FULL ON 1.2	DCM or VCM(5ch) PWM(±3%) 1.2	VCM(6ch) PWM(±3%) 1.2	—	Parallel + Serial	0.9 (±10%)

## 7ch System Lens Drivers for Digital Still Cameras

Part No.	Supply Voltage (V)	Driver Output Max. Current (A)	Drive Method Examples of Actuator(Drived Motor, Driving System, and Output ON Resistance(Ω))					Input I/F	Reference Voltage Output For Output Setting Current(V)	Package (mm)
			AF	Zoom	Iris	Shutter	Anti Shock			
BD6889GU	2.5 to 5.7	0.8	ex. 1	STM(1, 2ch) FULL ON 1.3	STM(3, 4ch) FULL ON 1.3	STM(5, 6ch) FULL ON 1.3	VCM(7ch) Constant current(±3%) 0.9	—	Parallel	0.9 (±2%)
			ex. 2	STM(1, 2ch) FULL ON 1.3	DCM(3ch) FULL ON 1.3	DCM(4ch) FULL ON 1.3	VCM(7ch) Constant current(±3%) 0.9	STM(5, 6ch) FULL ON 1.3		

## Single and Dual-Channel Lens Drivers for SLRs(Single Lens Reflex)

Part No.	ch	Supply Voltage (V)	Driver Output Max. Current (A)	Drive Method Examples of Actuator(Drived Motor, Driving System, and Output ON Resistance(Ω))					Turn on Time	Turn off Time	Control Frequency	Package (mm)	
				Cleaner	AF	Zoom	Iris	Shutter					
BD65492MUV	2	1.8 to 16.0	1.0	ex.	—	STM(2ch) FULL ON 0.9	—	—	—	200ns(Including 80ns to Prevent from overlap current.)	80ns	500kHz (Max.)	VQFN024V4040 (4.0×4.0)H=1.0Max.
BD6735FV	2	2.0 to 8.0	1.0	ex.	—	—	—	STM(2ch) FULL ON 1.0	—	300ns(Including 90ns to Prevent from overlap current.)	100ns	100kHz (Max.)	SSOP-B20 (6.5×6.4)H=1.25Max.
BD6376GUL	1	2.0 to 9.0	1.0	ex.	—	—	DCM(1ch) FULL ON 0.45	—	—	200ns(Including 80ns to Prevent from overlap current.)	60ns	200kHz (Max.)	VCSP50L1 (1.6×1.6)H=0.55Max.
BD65491FV	1	1.8 to 16.0	1.2 Peak 4.0	ex.	—	—	—	—	Plunger(1ch) FULL ON 0.35	150ns(Including 80ns to Prevent from overlap current.)	50ns	500kHz (Max.)	SSOP-B16 (6.5×5.0)H=1.25Max.
BD6736FV	1	2.0 to 9.0	1.0 Peak 3.2	ex.	—	—	—	—	Plunger(1ch) FULL ON 0.35	1000ns(Including 800ns to Prevent from overlap current.)	100ns	100kHz (Max.)	SSOP-B20 (6.5×6.4)H=1.25Max.
BD65499MUV	1	4.0 to 27.0	0.5 Peak 2.0	ex.	Piezo(1ch) FULL ON 0.6	—	—	—	—	150ns(Including 80ns to Prevent from overlap current.)	50ns	300kHz (Max.)	VQFN028V5050 (5.0×5.0)H=1.0Max.
BD65494MUV	1	2.0 to 9.0	1.0 Peak 2.5	ex.	—	—	—	—	Plunger(1ch) FULL ON 0.55	200ns(Including 80ns to Prevent from overlap current.)	60ns	200kHz (Max.)	VQFN016V3030 (3.0×3.0)H=1.0Max.
BD65496MUV	1	1.8 to 16.0	1.2 Peak 5.0	ex.	—	—	—	—	Plunger(1ch) FULL ON 0.35	150ns(Including 80ns to Prevent from overlap current.)	50ns	500kHz (Max.)	VQFN024V4040 (4.0×4.0)H=1.0Max.

STM : Stepping motor, DCM : DC motor, VCM : Voice coil motor("Drive method examples of actuator" are recommendation. Another types may be evaluated.)

Microstep System Lens Drivers for Digital Cameras												
Part No.	Supply Voltage (V)	Driver Output Max. Current (A)	Drive Method Examples of Actuator(Drived Motor, Driving System, and Output ON Resistance(Ω))					Input I/F	Microstep Resolution	Package (mm)		
			AF	Zoom	Iris	Shutter	Others					
BU24020GU	2.7 to 3.6 (Logic) 2.7 to 5.5 (Driver)	0.5	ex. 1	STM(1, 2ch) μ-step(class-D) 1.5	STM(3, 4ch) μ-step(class-D) 1.5	—	—	—	3-wire serial	1,024	VCSP85H2 (2.6×2.6) H=1.0Max.	
			ex. 2	STM(1, 2ch) μ-step(class-D) 1.5	DCM(3ch) FULL ON(PWM) 1.5	VCM(4ch) FULL ON(PWM) 1.5	—	—				
BU24031GW	1.62 to 3.6 (I) 2.7 to 3.6 (Logic) 2.7 to 5.5 (Driver)	0.5	ex	STM(1, 2ch) μ-step(class-D) 2.0	DCM(4ch) FULL ON(PWM+ Speed Control) 2.0	VCM(3ch) FULL ON(PWM) 2.0	VCM(5ch) constant current 1.0	—	3-wire serial	1,024	UCSP75M2 (2.5×2.5) H=0.85Max.	
BU24033GW	1.62 to 3.6 (I) 2.7 to 3.6 (Logic) 2.7 to 5.5 (Driver)	0.5/0.6	ex. 1	STM(1, 2ch) μ-step(class-D) 1.5	STM(3, 4ch) μ-step(class-D) 1.5	VCM(5ch) FULL ON(PWM) 1.0	VCM(6ch) constant current 1.0	—	3-wire serial	1,024	UCSP75M3 (3.0×3.0) H=0.85Max.	
			ex. 2	STM(1, 2ch) μ-step(class-D) 1.5	DCM(5ch) FULL ON (PWM+Speed Control) 1.0	VCM(3ch) FULL ON(PWM) 1.5	VCM(6ch) constant current 1.0	DCM(4ch) FULL ON(PWM) 1.5				
BU24035GW	2.7 to 3.6 (Logic) 2.7 to 5.5 (Driver)	0.5/0.6	ex. 1	STM(1, 2ch) μ-step(class-D) 1.5	DCM(5ch) FULL ON (PWM+Speed Control) 1.0	STM(3, 4ch) μ-step(class-D) 1.5	VCM(6ch) constant current 1.0	—	3-wire serial	1,024	UCSP75M3 (3.1×3.1) H=0.85Max.	
			ex. 2	STM(1, 2ch) μ-step(class-D) 1.5	DCM(3ch) FULL ON (PWM+Speed Control) 1.5	VCM(5ch) FULL ON(PWM)/ constant current 1.0	VCM(6ch) constant current 1.0	VCM(4ch) FULL ON(PWM) 1.5				
BU24036MWV	2.7 to 3.6 (Logic) 2.7 to 5.5 (Driver)	0.5/0.6	ex. 1	STM(1, 2ch) μ-step(class-D) 2.0	DCM(5ch) FULL ON (PWM+Speed Control) 1.0	STM(3, 4ch) μ-step(class-D) 1.5	VCM(6ch) constant current 1.0	—	3-wire serial	1,024	UQFN040V5050 (5.0×5.0) H=1.0Max.	
			ex. 2	STM(1, 2ch) μ-step(class-D) 2.0	DCM(3ch) FULL ON (PWM+Speed Control) 1.5	VCM(5ch) FULL ON(PWM)/ constant current 1.0	VCM(6ch) constant current 1.0	VCM(4ch) FULL ON(PWM) 1.5				
BU24038GW	2.7 to 3.6 (Logic) 2.7 to 5.5 (Driver)	0.5	ex. 1	STM(1, 2ch) μ-step(class-D) 1.5	STM (3, 4ch) μ-step (class-D) 1.5	STM (5, 6ch) μ-step (class-D) 1.5	VCM(8ch) FULL ON(PWM) 1.5	VCM(9ch) constant current 1.0	DCM(7ch) FULL ON(PWM) 1.5	3-wire serial	1,024	UCSP75M3 (3.5×3.5) H=0.85Max.
			ex. 2	STM(1, 2ch) μ-step(class-D) 1.5	STM(5, 6ch) μ-step(class-D) 1.5	VCM(3ch) FULL ON (PWM) 1.5	VCM(4ch) FULL ON (PWM) 1.5	VCM(9ch) constant current 1.0	DCM(7ch) FULL ON(PWM) 1.5			

STM : Stepping motor, DCM : DC motor, VCM : Voice coil motor("Drive method examples of actuator" are recommendation. Another types may be evaluated.)

# Mobile Phone Module Drivers

## Parallel Interface Lens Driver for Voice Coil Motors

Part No.	Supply Voltage (V)	Applications	ch	Drive System	Driver Output Max. Current (mA)	Driver Output ON Resistance (Ω)	Input I/F	Input Mode Selection Terminal	Current Sense Resistor	Temperature Protection	Power Save Function	Back side coating	Package (mm)
BD6369GUL	2.5 to 5.5	Drive AF  using voice coil motor.	1	Constant voltage (±5%)	400	0.8 (V <sub>M</sub> =5V, I <sub>O</sub> =0.4A)	Parallel	✓	—	✓	✓	with	VCSP50L2 (2.1×2.1) H=0.55Max.

## 2-wire Serial (I<sup>2</sup>C-compatible) Interface Lens Drivers for Uni-directional Voice Coil Motors

Part No.	Supply Voltage (V)	Applications	ch	Drive System	Driver Output Max. Current (mA)	Driver Output Low Voltage (V)	Input I/F	Ringing Compensation	Temperature Protection	Back side coating	Package (mm)
BU64241GWZ	2.3 to 4.8	Drive AF  using voice coil motor.	0.25	Constant current (±10%)	130	0.15 (V <sub>CC</sub> =3V, I <sub>O</sub> =100mA)	I <sup>2</sup> C Fm compatible	ISRC	✓	without	UCSP30L1 (1.3×0.77) H=0.33Max.
BU64243GWZ	2.3 to 4.8	Drive AF  using voice coil motor.	0.25	Constant current (±10%)	130	0.15 (V <sub>CC</sub> =3V, I <sub>O</sub> =100mA)	I <sup>2</sup> C Fm compatible	ISRC	✓	with	UCSP35L1 (0.77×1.3) H=0.40Max.
BU64244GWZ	2.3 to 4.8	Drive AF  using voice coil motor.	0.25	Constant current (±10%)	130	0.15 (V <sub>CC</sub> =3V, I <sub>O</sub> =100mA)	I <sup>2</sup> C Fm compatible	ISRC	✓	with	UCSP35L1 (0.77×1.3) H=0.36Max.
BU64291GWZ	2.3 to 4.8	Drive AF  using voice coil motor.	0.5	Constant current (±5%)	100	0.25 (V <sub>CC</sub> =3V, I <sub>O</sub> =100mA)	I <sup>2</sup> C Fm compatible	ISRC	✓	without	UCSP30L1 (0.77×1.3) H=0.33Max.
<b>New</b> BU64980AGWZ	2.3 to 4.8	Drive AF  using voice coil motor.	0.25	Constant current (±5%)	100	0.25 (V <sub>CC</sub> =3V, I <sub>O</sub> =100mA)	I <sup>2</sup> C Fm+ compatible	ISRC	✓	without	UCSP25L1 (0.72×1.13) H=0.3Max.
<b>New</b> BU64981AGWZ	2.3 to 4.8	Drive AF  using voice coil motor.	0.25	Constant current (±5%)	100	0.25 (V <sub>CC</sub> =3V, I <sub>O</sub> =100mA)	I <sup>2</sup> C Fm+ compatible	ISRC	✓	with	UCSP30L1A (0.72×1.13) H=0.33Max.

## 2-wire Serial (I<sup>2</sup>C-compatible) Interface Lens Drivers for Bi-directional Voice Coil Motors

Part No.	Supply Voltage (V)	Applications	ch	Drive System	Driver Output Max. Current (mA)	Driver Output ON Resistance (Ω)	Input I/F	Ringing Compensation	Temperature Protection	Back side coating	Package (mm)
BU64295GWZ	2.3 to 4.8	Drive AF  using voice coil motor.	1	Constant current (±5%)	±100	2.0 (V <sub>DD</sub> =3V)	I <sup>2</sup> C Fm compatible	ISRC	✓	without	UCSP30L1 (1.3×1.2) H=0.33Max.
BU64296GWX	2.3 to 4.8	Drive AF  using voice coil motor.	1	Constant current (±5%)	±100	2.0 (V <sub>DD</sub> =3V)	I <sup>2</sup> C Fm compatible	ISRC	✓	without	UCSP16X1 (0.77×1.2) H=0.20Max.
BU64297GWZ	2.3 to 4.8	Drive AF  using voice coil motor.	1	Constant current (±5%)	±100	2.0 (V <sub>DD</sub> =3V)	I <sup>2</sup> C Fm compatible	ISRC	✓	with	UCSP35L1 (0.77×1.2) H=0.36Max.
<b>New</b> BU64985GWZ	1.6 to 1.98	Drive AF  using voice coil motor.	1	Constant current (±5%)	±60	1.3 (V <sub>DD</sub> =1.8V)	I <sup>2</sup> C Fm+ compatible	ISRC	✓	with	UCSP30L1A (0.77×1.2) H=0.33Max.
<b>New</b> BU64987GWZ	1.6 to 1.98	Drive AF  using voice coil motor.	1	Constant current (±5%)	±100	1.3 (V <sub>DD</sub> =1.8V)	I <sup>2</sup> C Fm+ compatible	ISRC	✓	with	UCSP30L1A (0.77×1.2) H=0.33Max.

## 2-wire Serial (I<sup>2</sup>C-compatible) Interface Lens Driver for Piezo Actuators

Part No.	Supply Voltage (V)	Applications	ch	Drive System	Driver Output Max. Current (mA)	Driver Output ON Resistance (Ω)	Input I/F	Base Clock	UVLO	Temperature Protection	Power Save Function	Back side coating	Package (mm)
BU64562GWZ	V <sub>CC</sub> : 2.3 to 4.8	ex.1 Drive AF  using piezo actuator. ex.2 Drive ZOOM  using piezo actuator.	1	FULL ON	400	1.4 (V <sub>CC</sub> =3V)	I <sup>2</sup> C Fm compatible	Built-in 15MHz	✓	✓	✓	without	UCSP30L1 (1.90×0.77) H=0.33Max.

## Parallel Interface Lens Driver for Stepping Motors

Part No.	Supply Voltage (V)	Applications	ch	Drive System	Driver Output Max. Current (mA)	Driver Output ON Resistance (Ω)	Input I/F	Input Mode Selection Terminal	Built-In Wave Sloping Comparator	Temperature Protection	Power Save Function	Back side coating	Package (mm)
BD6360GUL	2.3 to 5.5	ex.1 Drive AF  using piezo actuator. ex.2 Drive ZOOM  using stepping motor.	2	FULL ON	400	1.0 (V <sub>CC</sub> =3V, I <sub>O</sub> =0.4A)	Parallel	✓	✓	✓	✓	with	VCSP50L2 (2.1×2.1) H=0.55Max.

=Auto Focus =Zoom

**A** Motor / Actuator Drivers