



Power Devices

SiC Power Devices

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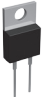

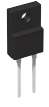


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SiC Power Devices







ISO9001- / ISO / TS 16949-approved

SiC Schottky Barrier Diodes

● Quick Reference for SiC-Schottky Barrier Diodes

V _{RM} (V)	I _F (A)	Leaded type				Surface Mounted type				
		 TO-220AC	 TO-220ACP	 TO-220FM	 TO-247	 TO-263AB (LPTL)				
650	2		New SCS302AP	25						
	4		New SCS304AP	26						
	6	SCS206AG SCS206AGHR	13 19 New SCS306AP	27	SCS206AM	30		SCS206AJ SCS206AJHR	1 7	
	8	SCS208AG SCS208AGHR	14 20 New SCS308AP	28	SCS208AM	31		SCS208AJ SCS208AJHR	2 8	
	10	SCS210AG SCS210AGHR	15 21 New SCS310AP	29	SCS210AM	32		SCS210AJ SCS210AJHR	3 9	
	12	SCS212AG SCS212AGHR	16 22		SCS212AM	33		SCS212AJ SCS212AJHR	4 10	
	15	SCS215AG SCS215AGHR	17 23		SCS215AM	34	SCS215AE	36	SCS215AJ SCS215AJHR	5 11
	20	SCS220AG SCS220AGHR	18 24		SCS220AM	35	SCS220AE SCS220AE2 SCS220AE2HR	37 38 41	SCS220AJ SCS220AJHR	6 12
	30						SCS230AE2 SCS230AE2HR	39 42		
	40						SCS240AE2 SCS240AE2HR	40 43		
1,200	5	SCS205KG SCS205KGHR	44 48							
	10	SCS210KG SCS210KGHR	45 49				SCS210KE2 SCS210KE2HR	52 56		
	15	SCS215KG SCS215KGHR	46 50							
	20	SCS220KG SCS220KGHR	47 51				SCS220KE2 SCS220KE2HR	53 57		
	30						SCS230KE2 SCS230KE2AHR	54 58		
	40						SCS240KE2 SCS240KE2AHR	55 59		

Note: Package is JEDEC code. () : ROHM Packages

SiC Schottky Barrier Diodes												
No.	Part No.	Absolute Maximum Ratings(Ta=25°C)				Electrical Characteristics(Ta=25°C)				Package	Equivalent Circuit Diagram	Automotive Grade AEC-Q101*2
		V _{RM} (V)	V _R (V)	I _F (A)	I _{FSM} (A) 50Hz,1~	V _F (V) Typ.	I _F (A)	I _R (μA) Max.	V _R (V)			
1	SCS206AJ	650	650	6	22	1.35	6	120	600	TO-263AB (LPTL)		—
2	SCS208AJ	650	650	8	29	1.35	8	160	600			—
3	SCS210AJ	650	650	10	38	1.35	10	200	600			—
4	SCS212AJ	650	650	12	42	1.35	12	240	600			—
5	SCS215AJ	650	650	15	52	1.35	15	300	600			—
6	SCS220AJ	650	650	20	67	1.35	20	400	600			—
7	SCS206AJHR	650	650	6	22	1.35	6	120	600			YES
8	SCS208AJHR	650	650	8	29	1.35	8	160	600			YES
9	SCS210AJHR	650	650	10	38	1.35	10	200	600			YES
10	SCS212AJHR	650	650	12	42	1.35	12	240	600			YES
11	SCS215AJHR	650	650	15	52	1.35	15	300	600			YES
12	SCS220AJHR	650	650	20	67	1.35	20	400	600			YES
13	SCS206AG	650	650	6	22	1.35	6	120	600	TO-220AC		—
14	SCS208AG	650	650	8	29	1.35	8	160	600			—
15	SCS210AG	650	650	10	38	1.35	10	200	600			—
16	SCS212AG	650	650	12	42	1.35	12	240	600			—
17	SCS215AG	650	650	15	52	1.35	15	300	600			—
18	SCS220AG	650	650	20	67	1.35	20	400	600			—
19	SCS206AGHR	650	650	6	22	1.35	6	120	600			YES
20	SCS208AGHR	650	650	8	29	1.35	8	160	600			YES
21	SCS210AGHR	650	650	10	38	1.35	10	200	600			YES
22	SCS212AGHR	650	650	12	42	1.35	12	240	600			YES
23	SCS215AGHR	650	650	15	52	1.35	15	300	600			YES
24	SCS220AGHR	650	650	20	67	1.35	20	400	600			YES
25	New SCS302AP	650	650	2	19	1.35	2	10.8	650	TO-220ACP		—
26	New SCS304AP	650	650	4	27	1.35	4	20	650			—
27	New SCS306AP	650	650	6	47	1.35	6	30	650			—
28	New SCS308AP	650	650	8	67	1.35	8	40	650			—
29	New SCS310AP	650	650	10	82	1.35	10	50	650			—
30	SCS206AM	650	650	6	22	1.35	6	120	600	TO-220FM		—
31	SCS208AM	650	650	8	29	1.35	8	160	600			—
32	SCS210AM	650	650	10	38	1.35	10	200	600			—
33	SCS212AM	650	650	12	42	1.35	12	240	600			—
34	SCS215AM	650	650	15	52	1.35	15	300	600			—
35	SCS220AM	650	650	20	67	1.35	20	400	600			—
36	SCS215AE	650	650	15	52	1.35	15	300	600	TO-247		—
37	SCS220AE	650	650	20	67	1.35	20	400	600			—
38	SCS220AE2	650	650	10/20*1	38/76*1	1.35	10	200	600			—
39	SCS230AE2	650	650	15/30*1	52/104*1	1.35	15	300	600			—
40	SCS240AE2	650	650	20/40*1	67/135*1	1.35	20	400	600			—
41	SCS220AE2HR	650	650	10/20*1	38/76*1	1.35	10	200	600			YES
42	SCS230AE2HR	650	650	15/30*1	52/104*1	1.35	15	300	600			YES
43	SCS240AE2HR	650	650	20/40*1	67/135*1	1.35	20	400	600	YES		
44	SCS205KG	1,200	1,200	5	22	1.4	5	100	1,200	TO-220AC		—
45	SCS210KG	1,200	1,200	10	42	1.4	10	200	1,200			—
46	SCS215KG	1,200	1,200	15	62	1.4	15	300	1,200			—
47	SCS220KG	1,200	1,200	20	78	1.4	20	400	1,200			—
48	SCS205KGHR	1,200	1,200	5	22	1.4	5	100	1,200			YES
49	SCS210KGHR	1,200	1,200	10	42	1.4	10	200	1,200			YES
50	SCS215KGHR	1,200	1,200	15	62	1.4	15	300	1,200			YES
51	SCS220KGHR	1,200	1,200	20	78	1.4	20	400	1,200			YES
52	SCS210KE2	1,200	1,200	5/10*1	22/45*1	1.4	5	100	1,200			—
53	SCS220KE2	1,200	1,200	10/20*1	42/84*1	1.4	10	200	1,200			—
54	SCS230KE2	1,200	1,200	15/30*1	62/124*1	1.4	15	300	1,200	—		
55	SCS240KE2	1,200	1,200	20/40*1	78/157*1	1.4	20	400	1,200	—		
56	SCS210KE2HR	1,200	1,200	5/10*1	22/45*1	1.4	5	100	1,200	YES		
57	SCS220KE2HR	1,200	1,200	10/20*1	42/84*1	1.4	10	200	1,200	YES		
58	SCS230KE2AHR	1,200	1,200	15/30*1	62/124*1	1.4	15	300	1,200	YES		
59	SCS240KE2AHR	1,200	1,200	20/40*1	78/157*1	1.4	20	400	1,200	YES		

Note: Package is JEDEC code. ():ROHM Packages

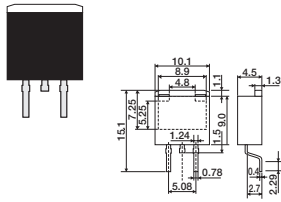
*1: (Per Leg/Device) *2: Rev.C

SiC Schottky Barrier Diodes

● Dimensions (Unit : mm)

Surface Mounted type

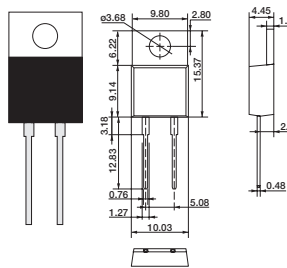
TO-263AB(LPTL)



Each lead has same dimensions

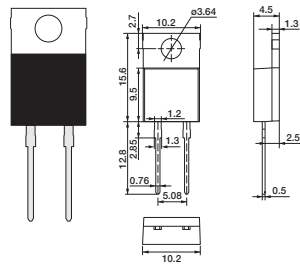
Leaded type

TO-220AC



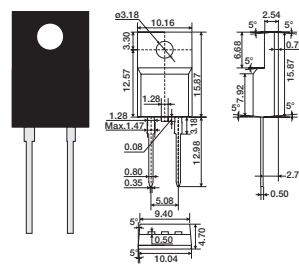
Each lead has same dimensions

TO-220ACP



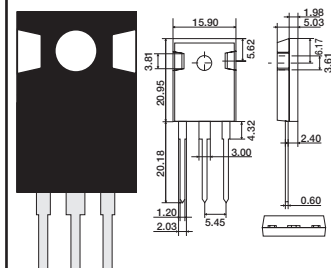
Each lead has same dimensions

TO-220FM



Each lead has same dimensions

TO-247

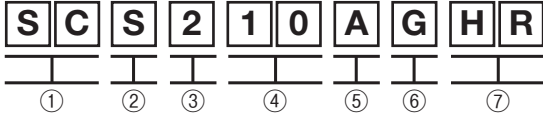


Each lead has same dimensions

Note: Package is JEDEC code. () :ROHM Packages

● Part No. Explanation

● Schottky Barrier Diode Part No. Explanation



- ① SiC Discrete Device
 ② Schottky Barrier Diode
 ③ Generation
 ④ Rated Current(A)
 Example 05 → 5A
 10 → 10A

- ⑤ Rated Voltage
 Example A → 650V
 K → 1,200V
 ⑥ Package
 Example J → TO-263AB(LPTL)
 G → TO-220AC
 P → TO-220ACP
 M → TO-220FM
 E → TO-247
 E2 → TO-247(Dual Chip)
 ⑦ Automotive Grade

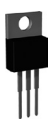
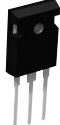
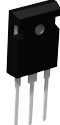
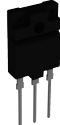

● Packaging type

Package	Code	Packaging Style	Basic Ordering Unit(pcs)
TO-263AB(LPTL)	TLL	Embossed Tape	1,000
TO-220AC	C	Tube	50
TO-220ACP	C9	Tube	50
TO-220FM	C	Tube	50
TO-247	C	Tube	30

Note: Package is JEDEC code. () :ROHM Packages

SiC MOSFET

Quick Reference for SiC MOSFET

V _{DSS} (V)	R _{DS(on)} (mΩ)	Leaded type				Surface Mounted type	SiC SBD	
								
		TO-220AB	TO-247	TO-247N	TO-3PFM	TO-268-2L		
400	120	SCTMU001F (MUSIC SERIES) 25					—	
650	17			SCT3017AL 1			—	
	22			SCT3022AL 2			—	
	30			SCT3030AL 3			—	
	60			SCT3060AL 4			—	
	80			New SCT3080AL 5			—	
1,200	120	SCT2120AF 7		SCT3120AL 6			—	
	22			SCT3022KL 8			—	
	30			SCT3030KL 9			—	
	40			SCT3040KL 10			—	
	80			SCT2080KE 14	SCT3080KL 11			Co-packed
				SCH2080KE 13				—
			☆SCT2080KEAHR 15					—
	160			SCT2160KE 16	SCT3160KL 12			—
				☆SCT2160KEAHR 17				—
	280			SCT2280KE 18				—
				☆SCT2280KEAHR 19				—
			SCT2450KE 20				—	
450			☆SCT2450KEAHR 21				—	
	1,150				SCT2H12NZ 24 New	SCT2H12NY 22	—	
750					New SCT2750NY 23	—		

Note: Package is JEDEC code.

☆ : Under Development

SiC MOSFET

SWITCHING SERIES											
No.	Part No.	Polarity (ch)	V _{DSS} (V)	I _D (A)	P _D (W) (T _c =25°C)	R _{DS(on)} Typ.(mΩ)	Q _g Typ.(nC)		Package	Automotive Grade AEC-Q101	
						V _{GS} =18V	V _{GS} =18V	Drive Voltage (V)			
1	SCT3017AL	N	650	118	427	17	172	18	TO-247N	—	
2	SCT3022AL	N	650	93	339	22	133	18		—	
3	SCT3030AL	N	650	70	262	30	104	18		—	
4	SCT3060AL	N	650	39	165	60	58	18		—	
5	New SCT3080AL	N	650	30	134	80	48	18		—	
6	SCT3120AL	N	650	21	103	120	38	18	TO-220AB	—	
7	SCT2120AF	N	650	29	165	120	61	18		—	
8	SCT3022KL	N	1,200	95	427	22	178	18		—	
9	SCT3030KL	N	1,200	72	339	30	131	18		—	
10	SCT3040KL	N	1,200	55	262	40	107	18		TO-247N	—
11	SCT3080KL	N	1,200	31	165	80	60	18		—	
12	SCT3160KL	N	1,200	17	103	160	42	18		—	
13	SCH2080KE	N	1,200	40	262	80	106	18		—	
14	SCT2080KE	N	1,200	40	262	80	106	18		—	
15	☆SCT2080KEAHR	N	1,200	40	262	80	106	18		—	YES
16	SCT2160KE	N	1,200	22	165	160	62	18		TO-247	—
17	☆SCT2160KEAHR	N	1,200	22	165	160	62	18	YES		
18	SCT2280KE	N	1,200	14	108	280	35	18	—		
19	☆SCT2280KEAHR	N	1,200	14	108	280	35	18	YES		
20	SCT2450KE	N	1,200	10	85	450	27	18	—		
21	☆SCT2450KEAHR	N	1,200	10	85	450	27	18	YES		
22	New SCT2750NY	N	1,700	5.9	57	750	17	18	TO-268-2L	—	
23	New SCT2H12NY	N	1,700	4	44	1,150	14	18		—	
24	SCT2H12NZ	N	1,700	3.7	35	1,150	14	18	TO-3PFM	—	
MUSIC SERIES											
25	SCTMU001F	N	400	20	132	120	59	18	TO-220AB	—	

Note: Package is JEDEC code.

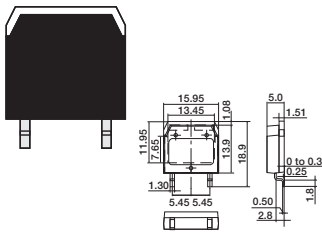
☆ : Under Development

SiC-MOSFET

Dimensions (Unit : mm)

Surface Mounted type

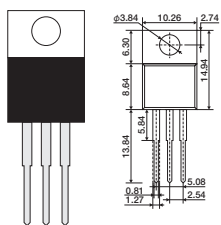
TO-268-2L



Each lead has same dimensions

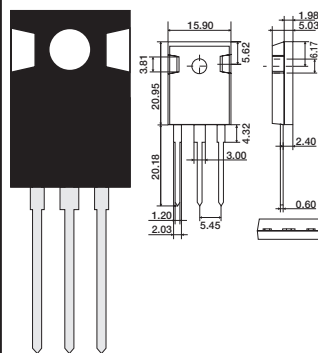
Leaded type

TO-220AB



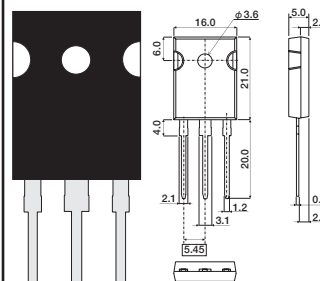
Each lead has same dimensions

TO-247



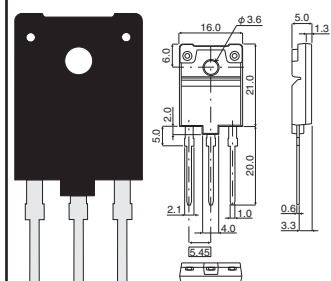
Each lead has same dimensions

TO-247N



Each lead has same dimensions

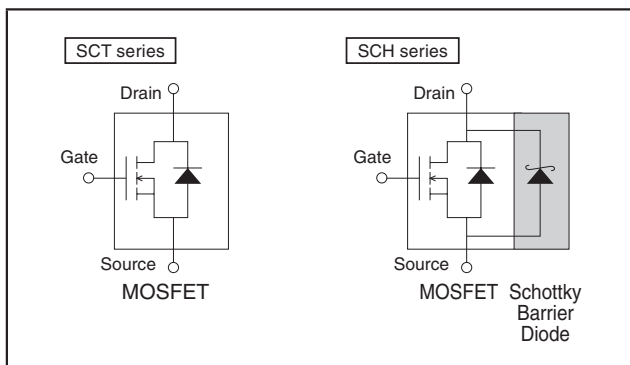
TO-3PFM



Each lead has same dimensions

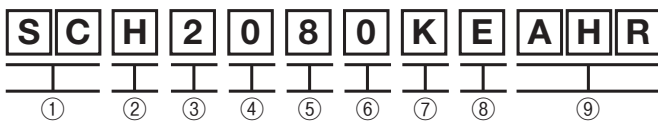
Note: Package is JEDEC code.

Internal Circuit



Part No. Explanation

MOSFET Part No. Explanation



- ① SiC discrete device
- ② H → MOSFET + Schottky Barrier Diode
T → MOSFET
- ③ Generation
- ④ ON-resistance [mΩ]
- ⑤ 080 = 80mΩ
- ⑥ H12 = 1.2 Ω
- ⑦ Rated Voltage A → 650V
K → 1,200V
N → 1,700V
- ⑧ Package F → TO-220AB
E → TO-247
L → TO-247N
Y → TO-268-2L
Z → TO-3PFM
- ⑨ Automotive Grade

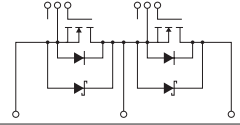
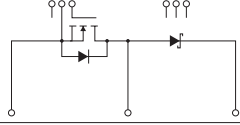
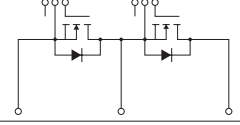
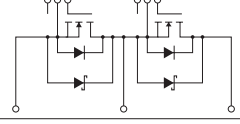
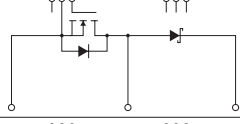
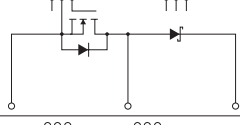
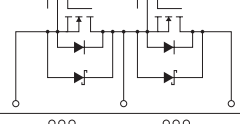
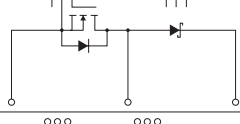
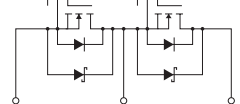

Packaging type

Package	Code	Packaging Style	Basic Ordering Unit(pcs)
TO-268-2L	TB	Embossed Tape	400
TO-220AB	C	Tube	50
TO-247	C	Tube	30
TO-247N	C11	Tube	30
TO-3PFM	C11	Tube	30

Full SiC Power Modules

Quick Reference for Full SiC Power Modules

V _{DSS} (V)	R _{DS(on)} (mΩ)	Case type		
		C type	E type	G type
1,200	34	BSM080D12P2C008		
	20	New BSM120D12P2C005 BSM120C12P2C201		
	12.8	BSM180D12P2C101		
	12.2		New BSM180C12P2E202 New BSM180D12P2E002	
	10	New BSM180D12P3C007 BSM180C12P3C202		
	7.3		BSM300D12P2E001	
	6.3		New BSM300C12P2E201	
	5.3			New BSM400D12P3G002
	3.2			New BSM600D12P3G001

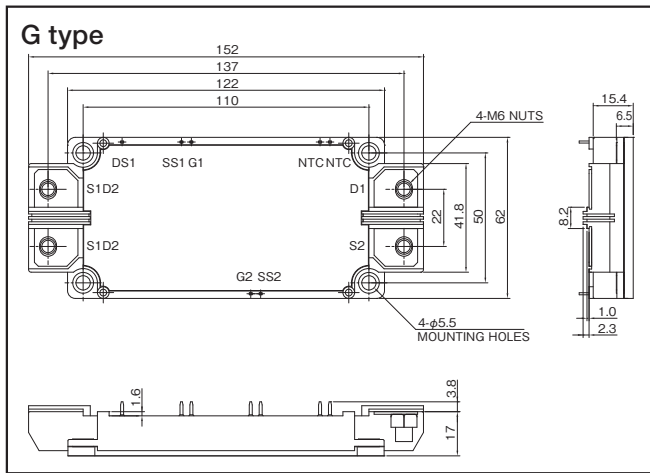
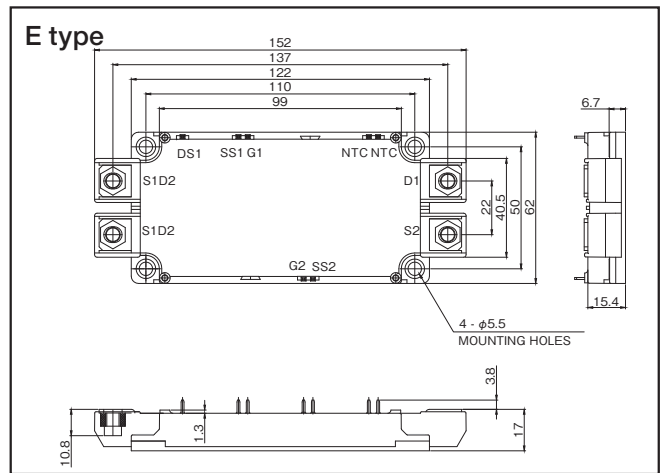
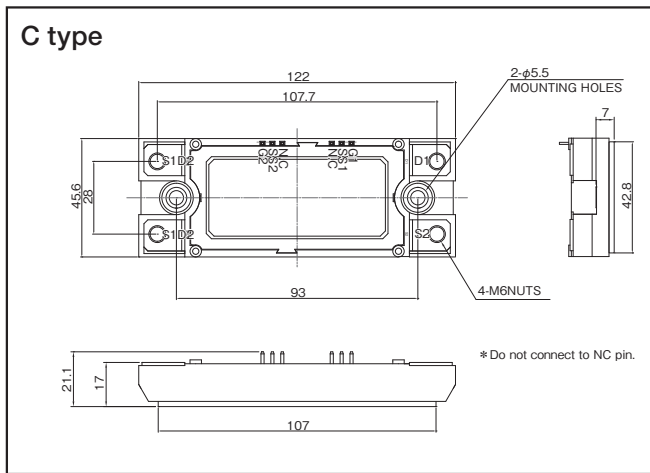
Full SiC Power Modules							
Part No.	Absolute Maximum Ratings (T _j = 25°C)					Package	Internal Circuit
	V _{DSS} (V)	I _D (A)	T _j (°C)	T _{stg} (°C)	Visol(V) AC 1min.		
BSM080D12P2C008	1,200	80	-40 to +175	-40 to +125	2,500	C type	
BSM120D12P2C005	1,200	120	-40 to +175	-40 to +125	2,500		
New BSM120C12P2C201	1,200	120	-40 to +175	-40 to +125	2,500		
BSM180D12P2C101	1,200	180	-40 to +175	-40 to +125	2,500		
BSM180D12P3C007	1,200	180	-40 to +175	-40 to +125	2,500		
New BSM180C12P3C202	1,200	180	-40 to +175	-40 to +125	2,500		
New BSM180C12P2E202	1,200	180	-40 to +175	-40 to +125	2,500	E type	
New BSM180D12P2E002	1,200	180	-40 to +175	-40 to +125	2,500		
BSM300D12P2E001	1,200	300	-40 to +175	-40 to +125	2,500		
New BSM300C12P3E201	1,200	300	-40 to +175	-40 to +125	2,500	G type	
New BSM400D12P3G002	1,200	400	-40 to +175	-40 to +125	2,500		
New BSM600D12P3G001	1,200	600	-40 to +175	-40 to +125	2,500		

B

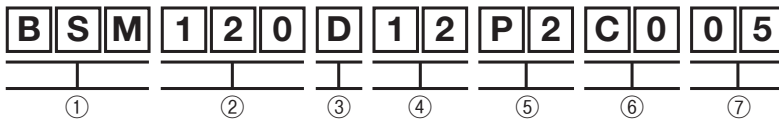
SiC Power Devices

Full SiC Power Modules

●Dimensions(Unit : mm)



●Part No. Explanation



- ① SiC Power Module
- ② Rated Current
- ③ 2 in 1
- ④ Breakdown Voltage
Example 12 → 1,200V
- ⑤ Device Type
P2...2nd generation SiC MOSFET
P3...3rd generation SiC MOSFET
- ⑥ Case type
- ⑦ Additional Number