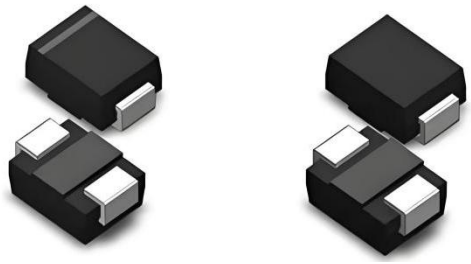
Mechanical Data

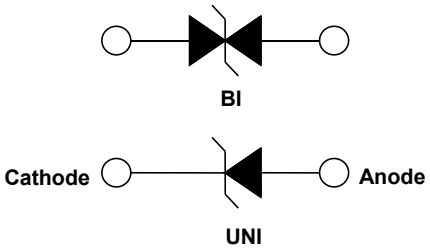
- Case: Molded plastic
- Epoxy: UL 94V-0 rate flame retardant
- Lead: Solderable per MIL-STD-750, method 2026
- Polarity: Color band denotes cathode end except Bipolar
- Mounting position: Any



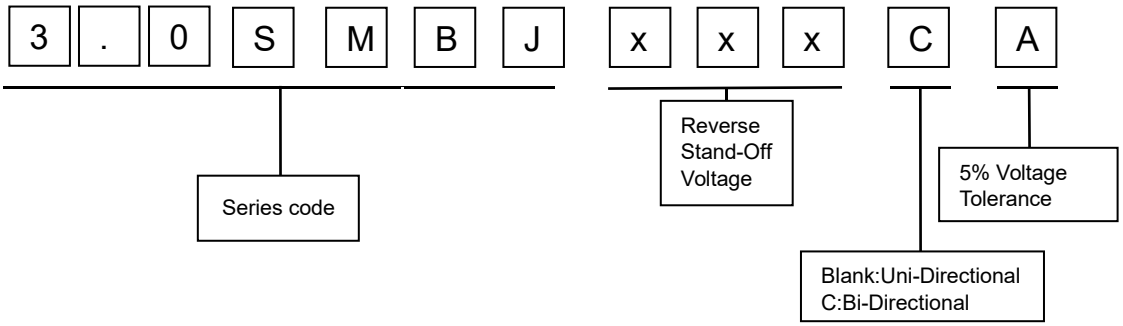
Features

- Fast response time
- Low incremental surge resistance
- Matte tin lead–free Plated
- Halogen free and RoHS compliant
- Meet MSL level1, per J-STD-020
- Compatible with industrial standard package DO-214AA
- Moisture sensitivity level: Level 1
- Storage Period: 2 years
- For surface mounted applications to optimize board space
- 3000W peak pulse power capability with at 10/1000μs waveform, repetition rate (duty cycle): 0.01%
- High temperature soldering:260°C/10 seconds at terminals

Electrical symbol



Part Number Code



Absolute Maximum Ratings (TA=25℃ unless otherwise noted)

Rating	Symbol	Value	Units
Peak power dissipation with a 10/1000 us waveform(1)	P_{PP}	3000	W
Power dissipation on infinite heatsink at TL = 75℃	P_D	6.5	W
Peak forward surge current, 8.3 ms single half sinewave unidirectional only(2)	I_{FSM}	200	A
Maximum instantaneous forward voltage at 100 A for unidirectional only(3)	V_F	7.0/13.0	V
Operating Temperature Range Storage Temperature Range	T_J , T_{STG}	-55 to 150	℃

Maximum Ratings & Characteristics Ratings at 25℃ ambient temperature unless otherwise specified.

Notes

1:Non-repetitive current pulse per Fig.5 and derated above TA= 25 ° C per Fig.1;

2:Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum;

3:VF<7.0V for devices of VBR<100V and VF<13.0V for devices of VBR>101V;

4: Mounted on 8.0x8.0mm copper pad to each terminal.

Electrical Characteristics

Type Number		Marking		Reverse Stand-Off Voltage	Breakdown Voltage		Test Current	Max. Clamping Voltage 10/1000μs	Max. Peak Pulse Current 10/1000μs	Reverse Leakage
				V_{RWM}	V_{BR} @I_T		I_T	V_C@I_{PP}	I_{PP}	I_R@V_{RWM}
					Min	Max				
UNI	BI	UNI	BI	V	V	V	mA	V	A	μA
3.0SMBJ11A	3.0SMBJ11CA	PDZ	DDZ	11.0	12.2	13.5	1	18.2	164.8	800
3.0SMBJ12A	3.0SMBJ12CA	PEE	DEE	12.0	13.3	14.7	1	19.9	150.8	800
3.0SMBJ13A	3.0SMBJ13CA	PEG	DEG	13.0	14.4	15.9	1	21.5	139.5	500
3.0SMBJ14A	3.0SMBJ14CA	PEK	DEK	14.0	15.6	17.2	1	23.2	129.3	200
3.0SMBJ15A	3.0SMBJ15CA	PEM	DEM	15.0	16.7	18.5	1	24.4	123.0	200
3.0SMBJ16A	3.0SMBJ16CA	PEP	DEP	16.0	17.8	19.7	1	26.0	115.4	100
3.0SMBJ17A	3.0SMBJ17CA	PER	DER	17.0	18.9	20.9	1	27.6	108.7	50
3.0SMBJ18A	3.0SMBJ18CA	PET	DET	18.0	20.0	22.1	1	29.2	102.7	20
3.0SMBJ20A	3.0SMBJ20CA	PEV	DEV	20.0	22.2	24.5	1	32.4	92.6	10
3.0SMBJ22A	3.0SMBJ22CA	PEX	DEX	22.0	24.4	26.9	1	35.5	84.5	5
3.0SMBJ24A	3.0SMBJ24CA	PEZ	DEZ	24.0	26.7	29.5	1	38.9	77.1	5
3.0SMBJ26A	3.0SMBJ26CA	PFE	DFE	26.0	28.9	31.9	1	42.1	71.3	5
3.0SMBJ28A	3.0SMBJ28CA	PFG	DFG	28.0	31.1	34.4	1	45.4	66.1	5
3.0SMBJ30A	3.0SMBJ30CA	PFK	DFK	30.0	33.3	36.8	1	48.4	62.0	5
3.0SMBJ33A	3.0SMBJ33CA	PFM	DFM	33.0	36.7	40.6	1	53.3	56.3	5
3.0SMBJ36A	3.0SMBJ36CA	PFP	DFP	36.0	40.0	44.2	1	58.1	51.6	5
3.0SMBJ40A	3.0SMBJ40CA	PFR	DFR	40.0	44.4	49.1	1	64.5	46.5	5
3.0SMBJ43A	3.0SMBJ43CA	PFT	DFT	43.0	47.8	52.8	1	69.4	43.2	5
3.0SMBJ45A	3.0SMBJ45CA	PFV	DFV	45.0	50.0	55.3	1	72.7	41.3	5
3.0SMBJ48A	3.0SMBJ48CA	PFX	DFX	48.0	53.3	58.9	1	77.4	38.8	5
3.0SMBJ51A	3.0SMBJ51CA	PFZ	DFZ	51.0	56.7	62.7	1	82.4	36.4	5
3.0SMBJ54A	3.0SMBJ54CA	PGE	DGE	54.0	60.0	66.3	1	87.1	34.4	5
3.0SMBJ58A	3.0SMBJ58CA	PGG	DGG	58.0	64.4	71.2	1	93.6	32.1	5
3.0SMBJ60A	3.0SMBJ60CA	PGK	DGK	60.0	66.7	73.7	1	96.8	31.0	5
3.0SMBJ64A	3.0SMBJ64CA	PGM	DGM	64.0	71.1	78.6	1	103.0	29.1	5
3.0SMBJ70A	3.0SMBJ70CA	PGP	DGP	70.0	77.8	86.0	1	113.0	26.5	5
3.0SMBJ75A	3.0SMBJ75CA	PGR	DGR	75.0	83.3	92.1	1	121.0	24.8	5
3.0SMBJ78A	3.0SMBJ78CA	PGT	DGT	78.0	86.7	95.8	1	126.0	23.8	5
3.0SMBJ85A	3.0SMBJ85CA	PGV	DGV	85.0	94.4	104.0	1	137.0	21.9	5
3.0SMBJ90A	3.0SMBJ90CA	PGX	DGX	90.0	100.0	111.0	1	146.0	20.5	5

Electrical Characteristics

Type Number		Marking		Reverse Stand-Off Voltage	Breakdown Voltage		Test Current	Max. Clamping Voltage 10/1000μs	Max. Peak Pulse Current 10/1000μs	Reverse Leakage
				V_{RWM}	V_{BR} @I_T		I_T	V_C@I_{PP}	I_{PP}	I_R@V_{RWM}
					Min	Max				
UNI	BI	UNI	BI	V	V	V	mA	V	A	μA
3.0SMBJ100A	3.0SMBJ100CA	PGZ	DGZ	100.0	111.0	123.0	1	162.0	18.5	5
3.0SMBJ110A	3.0SMBJ110CA	PHE	DHE	110.0	122.0	135.0	1	177.0	16.9	5
3.0SMBJ120A	3.0SMBJ120CA	PHG	DHG	120.0	133.0	147.0	1	193.0	15.5	5
3.0SMBJ130A	3.0SMBJ130CA	PHK	DHK	130.0	144.0	159.0	1	209.0	14.4	5
3.0SMBJ150A	3.0SMBJ150CA	PHM	DHM	150.0	167.0	185.0	1	243.0	12.3	5
3.0SMBJ180A	3.0SMBJ180CA	PHT	DHT	180.0	200.0	220.0	1	291.6	10.29	5

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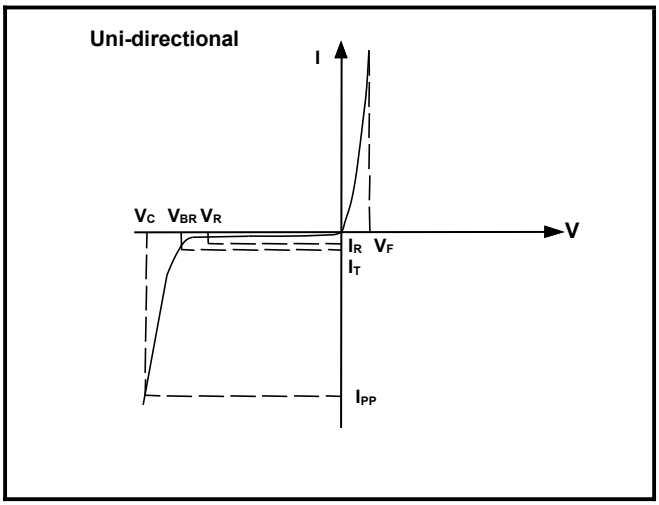
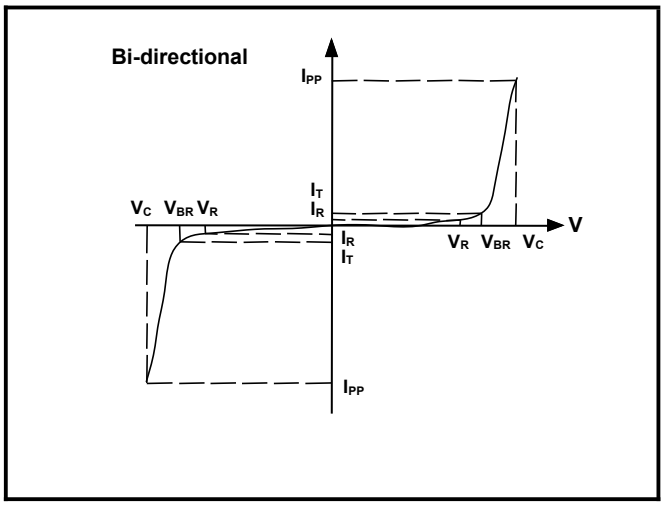
I-V Curve Characteristics





P_{PPM} Peak Pulse Power Dissipation -- Max power dissipation

V_R Stand-off Voltage -- Maximum voltage that can be applied to the TVS without operation

V_{BR} Breakdown Voltage -- Maximum voltage that flows though the TVS at a specified test current (I_T)

V_C Clamping Voltage -- Peak voltage measured across the TVS at a specified Ippm (peak impulse current)

I_R Reverse Leakage Current -- Current measured at V_R

V_F Forward Voltage Drop for Uni-directional

Ratings and Characteristic Curves (T_A=25°C unless otherwise noted)

Figure 1 - Pulse Derating Curve

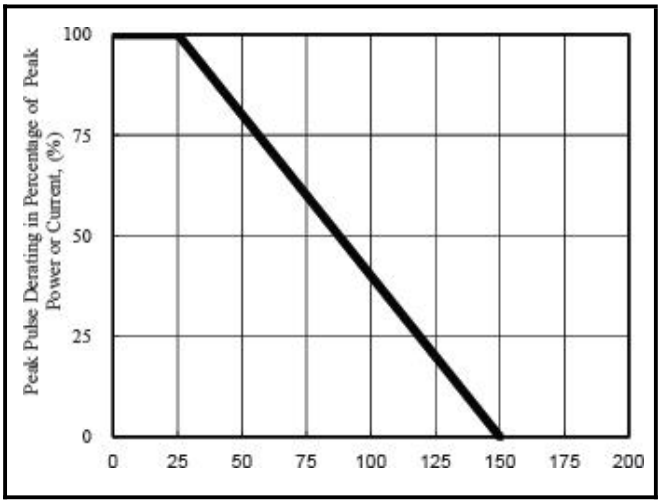
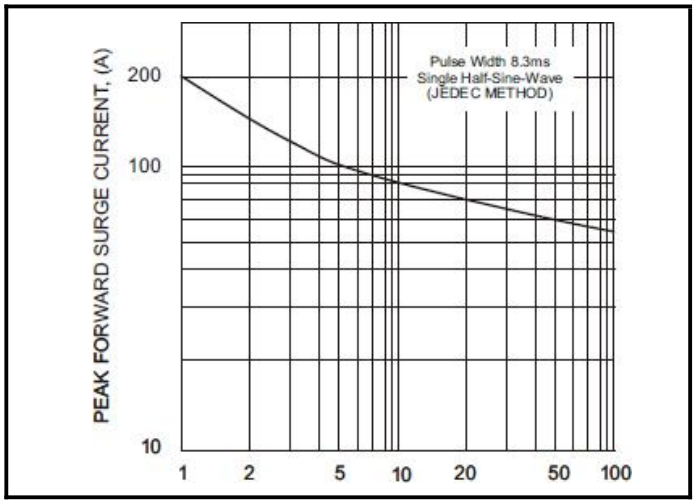


Figure 2 - Peak Pulse Power Rating CurveMaximum



Ratings and Characteristic Curves (TA=25°C unless otherwise noted)

Figure 3 - Steady State Power Derating Curve

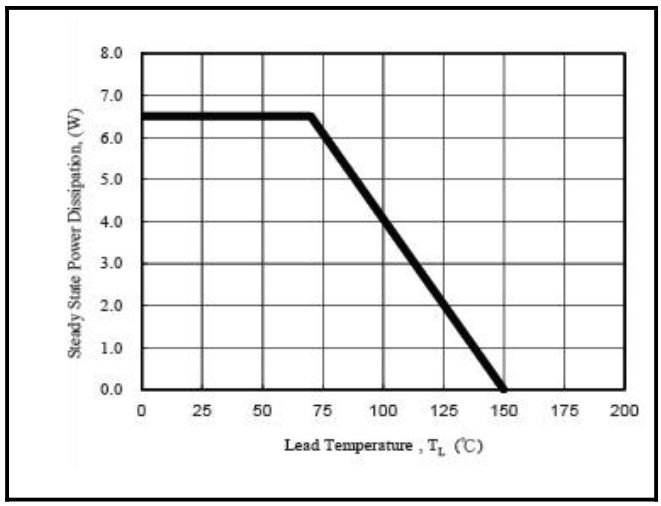


Figure 4 - Peak Pulse Power Rating Curve

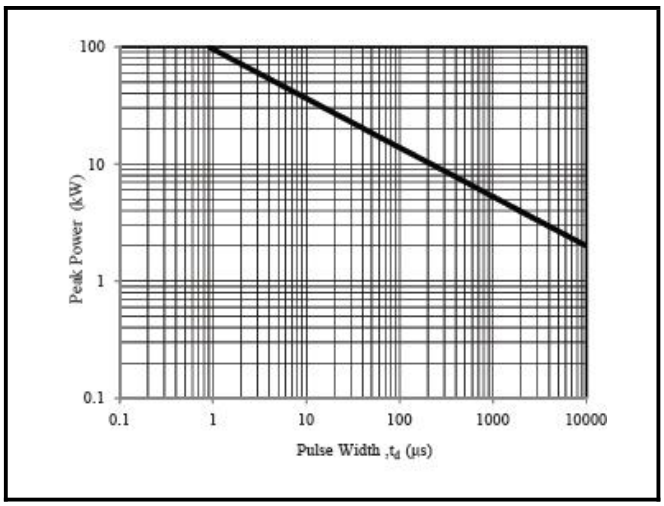


Figure 5 -Pulse Waveform

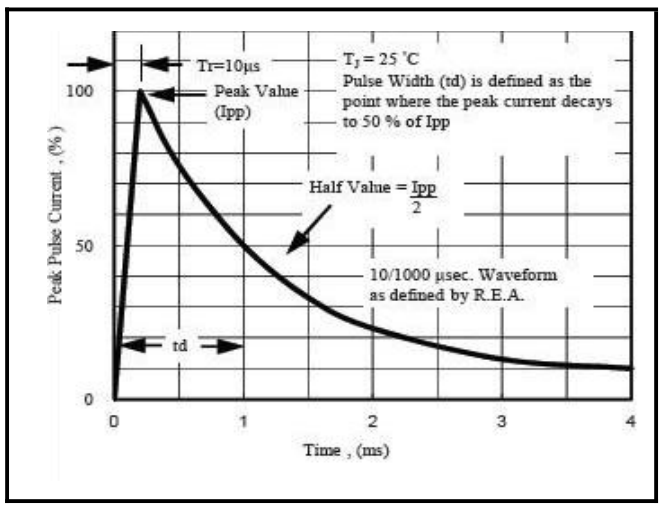
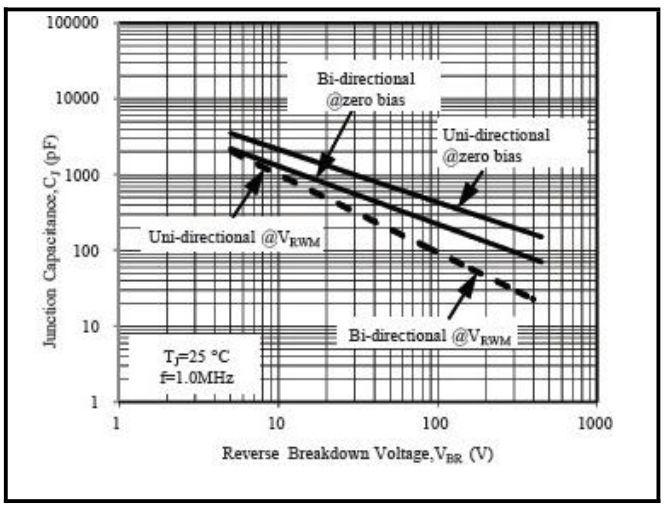
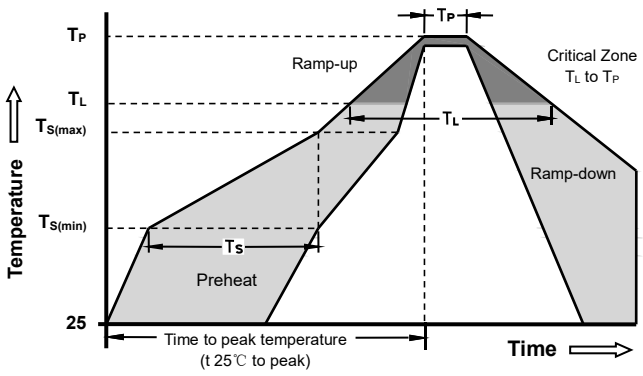


Figure 6 - Typical Junction Capacitance

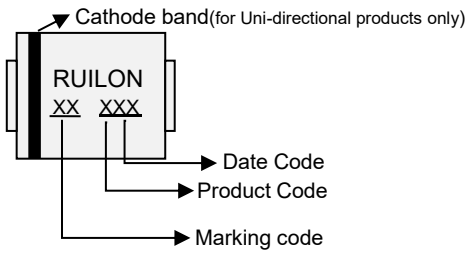


Soldering Parameters - Reflow Soldering (Surface Mount Devices)

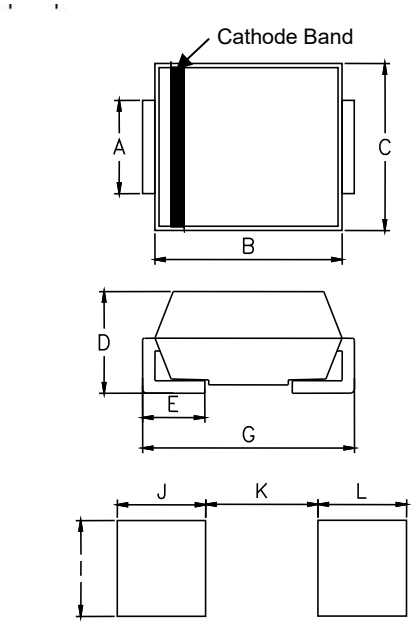


Reflow Condition		Pb - Free assembly
Pre Heat	-Temperature Min ($T_{s(min)}$)	150°C
	-Temperature Max ($T_{s(max)}$)	200°C
	- Time (min to max) (t_s)	60 -180 Seconds
Average ramp up rate (Liquids Temp T_L) to peak		3°C/second max
$T_{S(max)}$ to TL - Ramp-up Rate		3°C/second max
Reflow	- Temperature (T_L) (Liquids)	217°C
	- Time (min to max) (t_s)	60 -150 Seconds
Peak Temperature (T_P)		260 +0/-5°C
Time within 5°C of actual peak Temperature (t_p)		20 - 40 Seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_P)		8 minutes Max
Do not exceed		260°C

Part Marking System

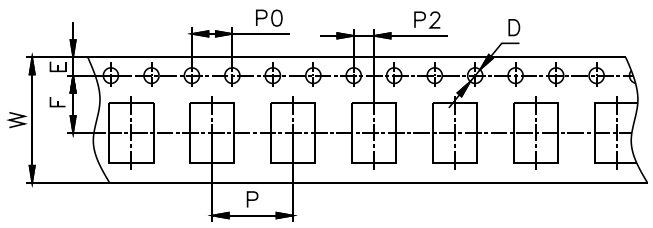


Dimensions

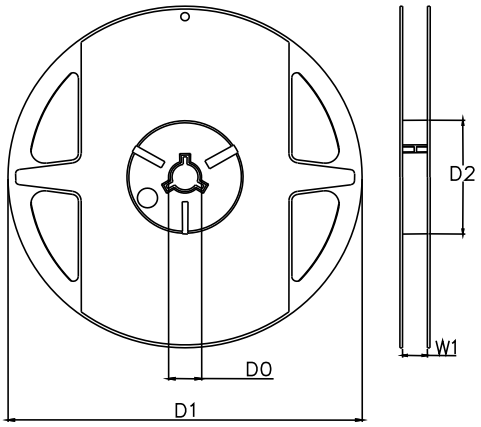


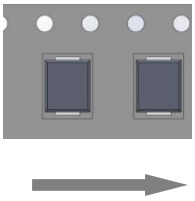
DIM	Millimeters		Inches	
	Min	Max	Min	Max
A	1.80	2.20	0.071	0.086
B	4.05	4.65	0.160	0.183
C	3.30	3.94	0.130	0.155
D	2.22	2.75	0.087	0.108
E	0.76	1.52	0.030	0.060
G	5.08	5.59	0.200	0.220
I	2.26	-	0.089	-
J	2.16	-	0.085	-
K	-	2.74	-	0.107
L	2.16	-	0.085	-

Taping and Reel Specifications



Symbol	Millimeters	Inches
W	12±0.3	0.472±0.012
P	8±0.1	0.315±0.004
F	5.5±0.1	0.217±0.004
E	1.75±0.1	0.069±0.004
D	1.5+0.1/-0.0	0.059+0.004/-0.0
P0	4±0.1	0.157±0.004
P2	2±0.1	0.079±0.004
D0	16.7±0.15	0.657±0.006
D1	330±2	12.99±0.079
D2	59.6+1/-2	2.346+0.039/-0.079
W1	12.4±0.4	0.49±0.016





Direction of Unreeling

Part Number	Component package	Quantity	Packaging option	Packaging specification
3.0SMBJXXXA/CA	DO-214AA(SMB)	3000PCS	Tape&Reel-12mm/13”tape	EIA STD RS-481