BORN SEMICONDUCTOR

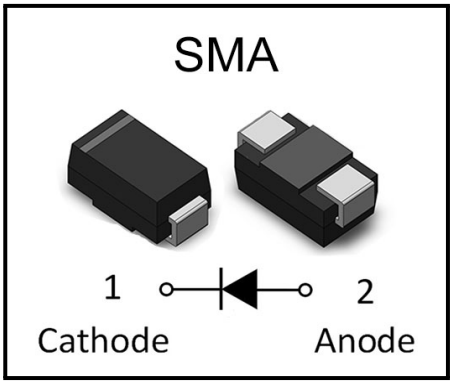
M1-M7

Rectifier Diode

Features

- Low forward voltage drop
- High current capability
- High reliability
- High surge current capability
- Epitaxial construction

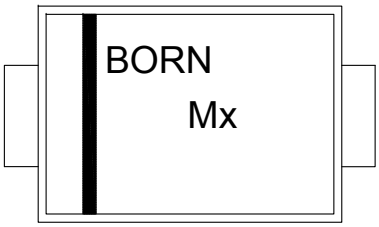
Package



Description

- Case: molded plastic
- Polarity: Color band denotes cathode
- Package: SMA Plastic Package

Making Code



Ordering information

Order code	M1	M2	M3	M4	M5	M6	M7
Marking	M1	M2	M3	M4	M5	M6	M7
Base qty	5K	5K	5K	5K	5K	5K	5K

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Rectifier Diode

Maximum Ratings (@T_A=25°C unless otherwise noted)

Symbol	Parameter	M1	M2	M3	M4	M5	M6	M7	Unit
V_{RRM}	Maximum Recurrent Peak Reverse Voltage	50	100	200	400	600	800	1000	V
V_{RMS}	Maximum RMS Voltage	35	70	140	280	420	560	700	V
V_{DC}	Maximum DC Blocking Voltage	50	100	200	400	600	800	1000	V
I_{AV}	Maximum Average Forward Rectified Current T_L = 100°C	1.0							A
I_{FSM}	Peak Forward Surge Current 8.3ms Single half-sine-wave superimposed on rated	30							A
V_F	Maximum Forward Voltage at 1.0A	1.1							V
I_R	Maximum Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 100°C	5.0 50							uA
C_J	Typical Junction Capacitance (Note 1)	18							pF
$R_{\theta JA}$	Typical Thermal Resistance	80							°C/W
T_j	Operating Junction Temperature Range	-55 to +150							°C
T_{STG}	Storage Temperature Range	-55 to +150							°C

Note 1: Measured at 1.0 MHz and applied reverse voltage of 4.0V DC.

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Typical Performance Characteristics(T_J = 25 °C, unless otherwise noted)

Figure 1 : TYPICAL FORWARD CHARACTERIST

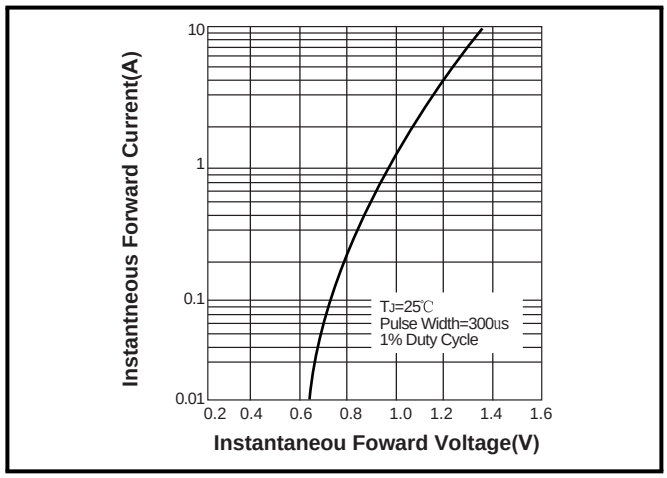


Figure 2 : PEAK FORWARD SURGE CURRE

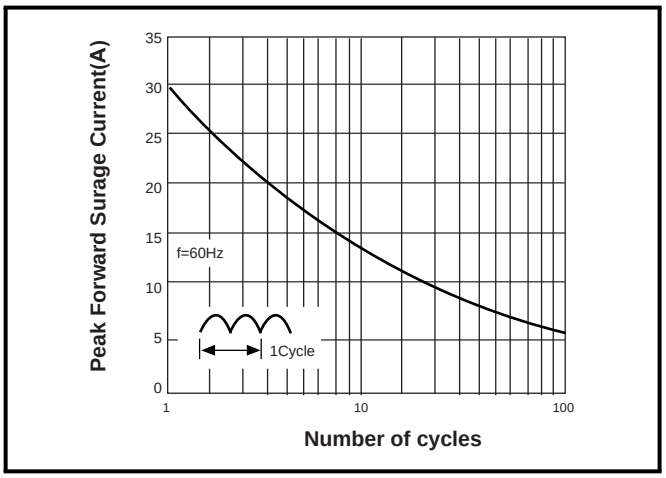


Figure 3 : FORWARD CURRENT DERATING CUR

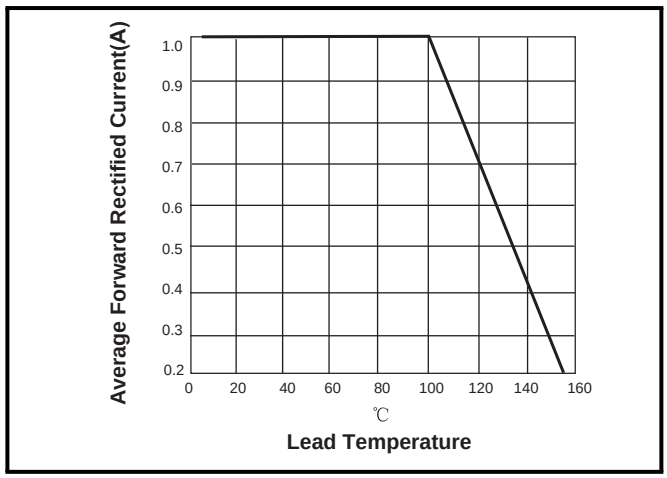
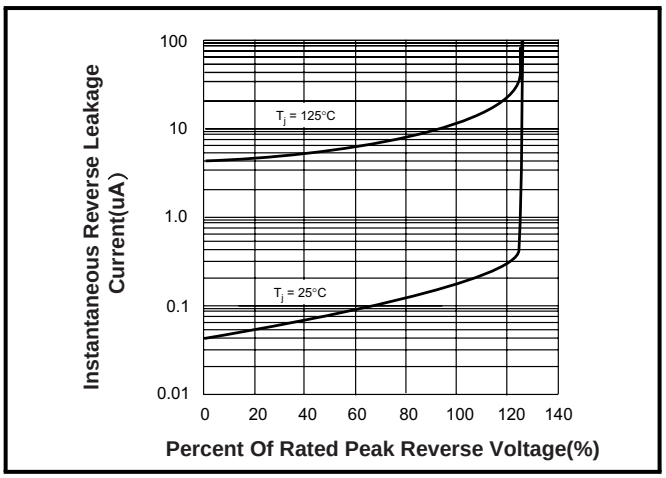


Figure 4 :TYPICAL REVERSE CHARACTERISTIC



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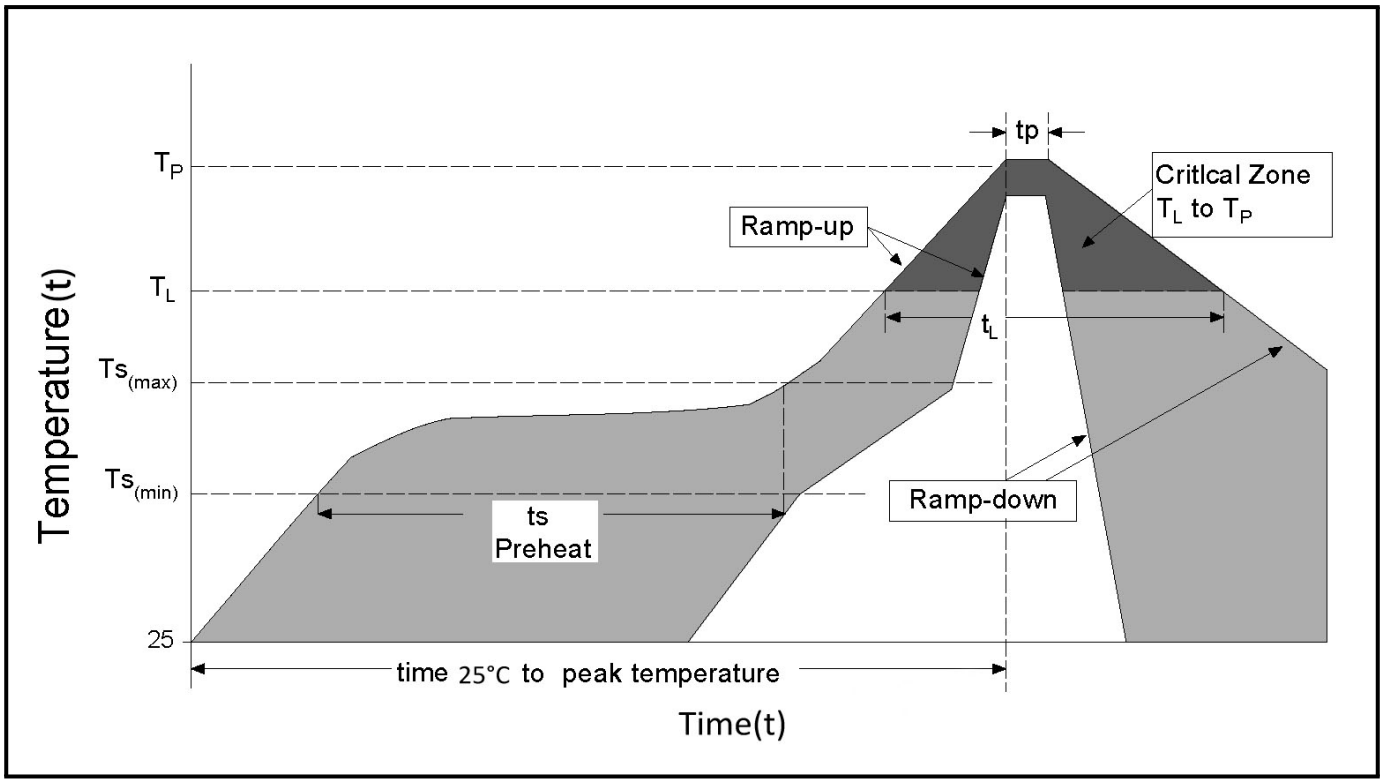
Soldering Parameters



Reflow Condition		Lead-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 secs
Average ramp up rate (Liquidus Temp (T_L) to peak)		3°C/second max
T_S(max) to T_L - Ramp-up Rate		3°C/second max
Reflow	- Temperature (T_L) (Liquidus)	217°C
	- Time (t_L)	60 -150 secs
Peak Temperature (T_P)		$260^{+0/-5°C}$
Time within 5°C of actual peak Temperature (t_p)		20 -40 secs
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (t)		8 minutes Max.
Do not exceed		260°C

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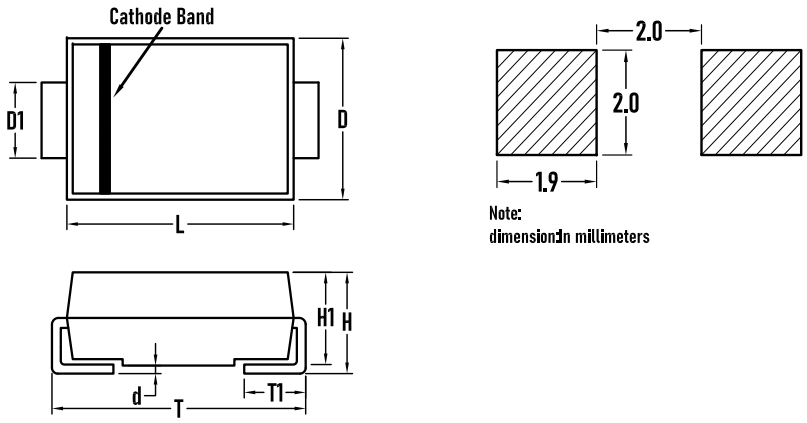
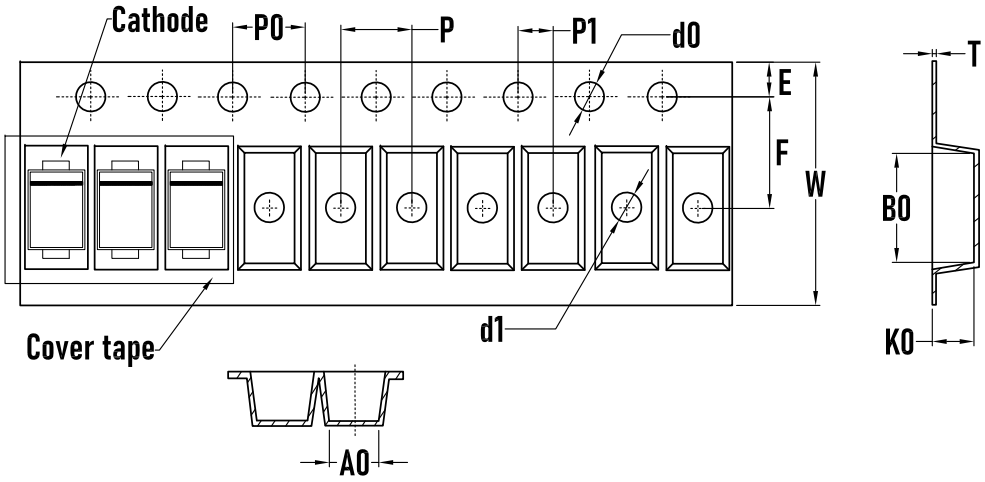
Outline Drawing - SMA



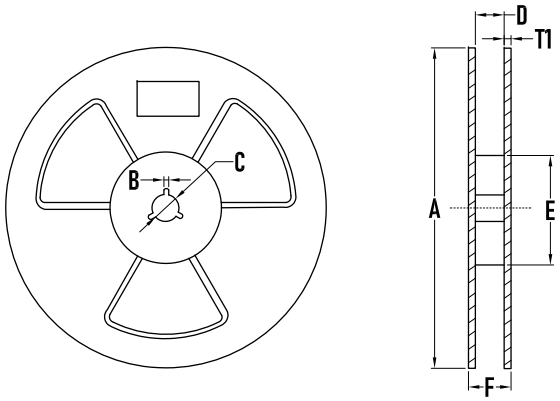
SYMBOL	MILLIMETER		Inches	
	MIN.	MAX.	MIN.	MAX.
D	2.5	2.9	0.098	0.114
D1	1.2	1.8	0.047	0.071
T	4.8	5.3	0.189	0.209
T1	0.8	1.5	0.031	0.059
d	–	0.2	–	0.008
H1	1.8	2.2	0.071	0.087
H	1.9	2.5	0.075	0.098
L	3.9	4.6	0.154	0.181

Packaging Tape - SMA



SYMBOL	MILLIMETER
A0	2.70
B0	5.10±0.1
d0	1.50±0.1
d1	1.50±0.1
E	1.75±0.1
F	5.50±0.1
K0	2.40±0.1
P	4.00±0.1
P0	4.00±0.1
P1	2.00±0.1
W	12.00±0.1
T	0.2±0.02

Packaging Reel



SYMBOL	MILLIMETER
A	323±2
B	3.0±0.2
C	15.0±0.5
D	13±2
E	73±2
T1	2.2±0.2
Quantity	5000PCS

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