BORN SEMICONDUCTOR

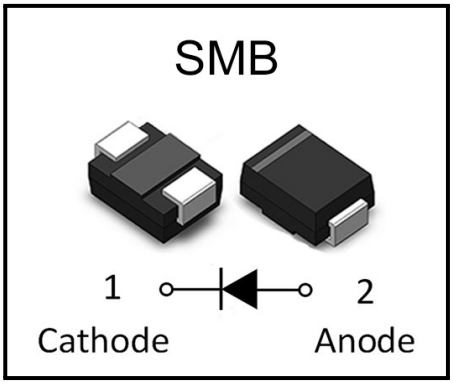
S3A-S3M

Rectifier Diode

Features

- Super fast switching time for high efficinency
- Low forward voltage drop
- High current capability
- High reliability
- High surge current capability
- Epitaxial construction

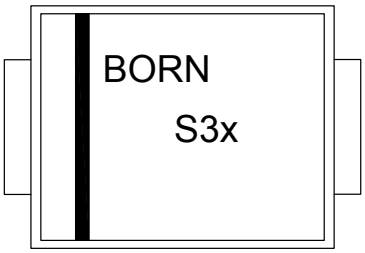
Package



Description

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

Making Code



Ordering information

Part Number	S3A	S3B	S3D	S3G	S3J	S3K	S3M
Marking	S3A	S3B	S3D	S3G	S3J	S3K	S3M
Base qty	3K	3K	3K	3K	3K	3K	3K

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S3A-S3M

Rectifier Diode

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

Symbol	Characteristics	S3A	S3B	S3D	S3G	S3J	S3K	S3M	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	3.0							A
I_{FSM}	Peak Forward Surge Current 8.3ms Single half sine-wave Superimposed on Rated Load(JEDEC Method)	100							A
V_F	Maximum Instantaneous Forward Voltage at 3.0A	1.1							V
I_R	Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 100°C	5.0 50							uA
C_J	Typical Junction Capacitance (Note1)	40							pF
$R_{\theta JA}$	Typical Thermal Resistance	30							°C/W
T_J	Operating 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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S3A-S3M

Rectifier Diode

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

Figure 1: Typical Forward Characteristics

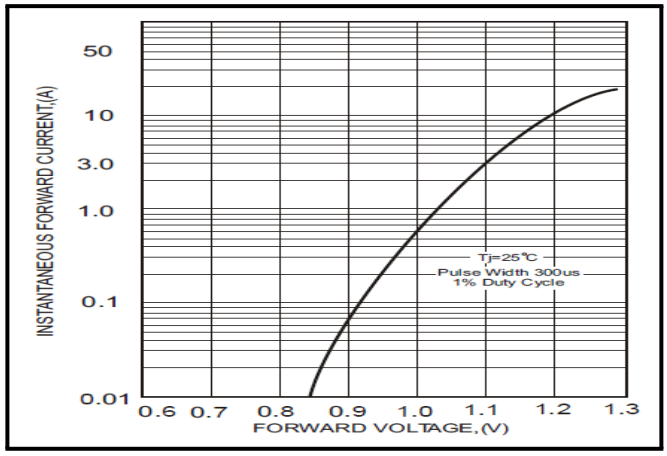


Figure 2: Typical Forward Current Derating Curve

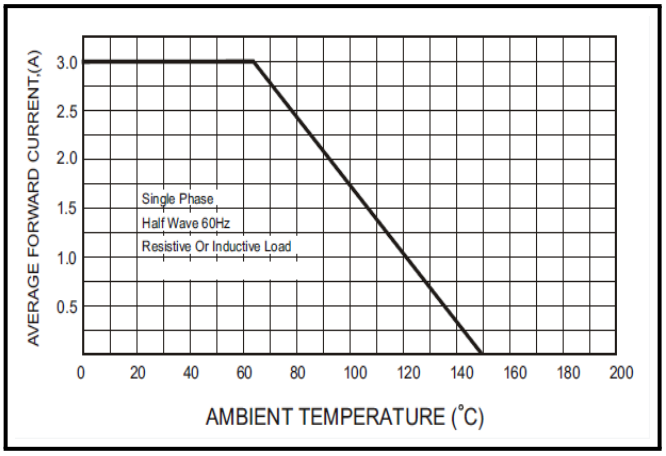


Figure 3: Typical Reverse Characteristics

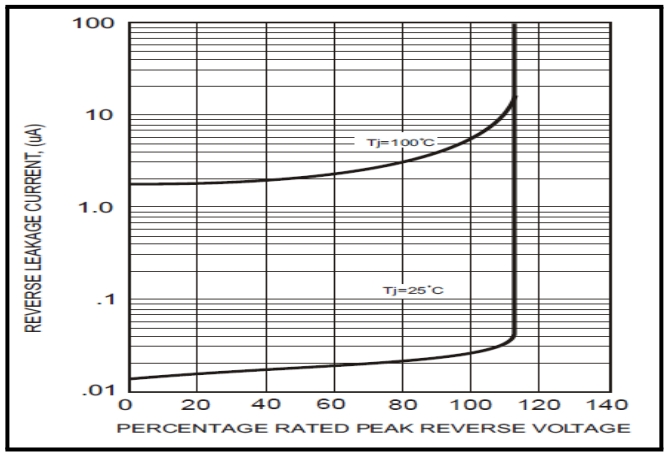


Figure 4: Maximum Non-Repetitive Forward Surge Current

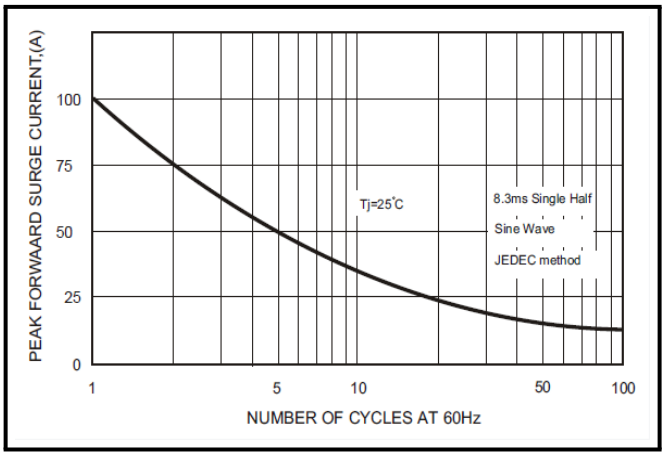
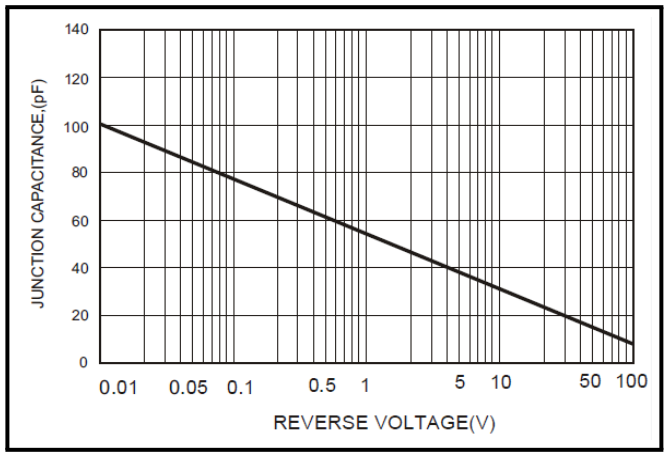


Figure 5: Typical Junction Capacitance



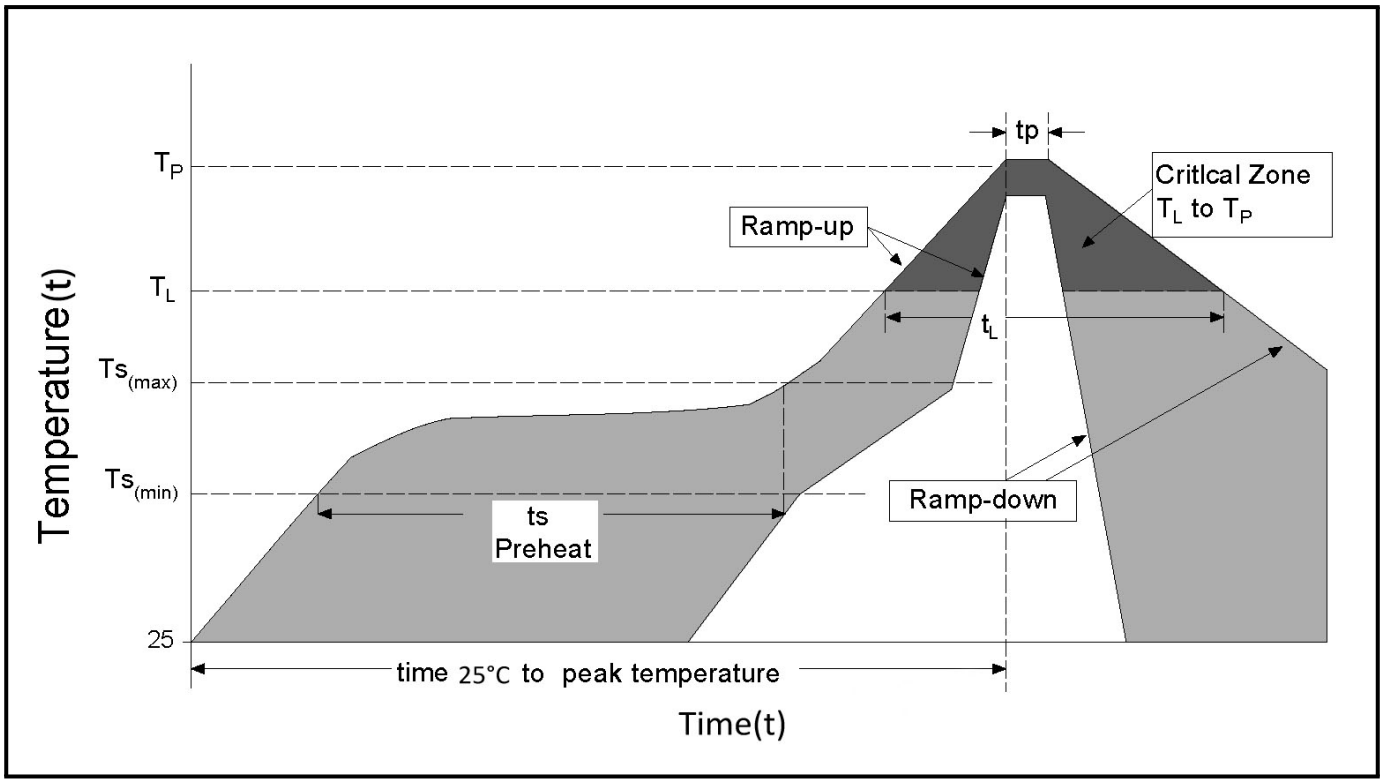
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S3A-S3M

Rectifier Diode

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

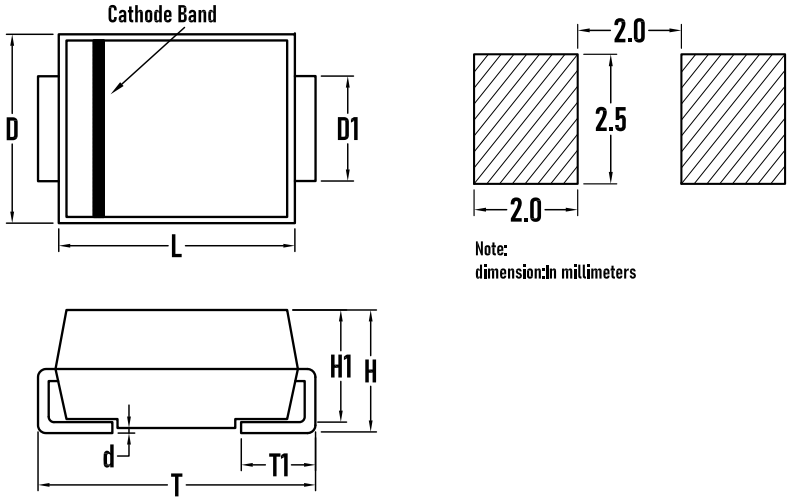
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S3A-S3M

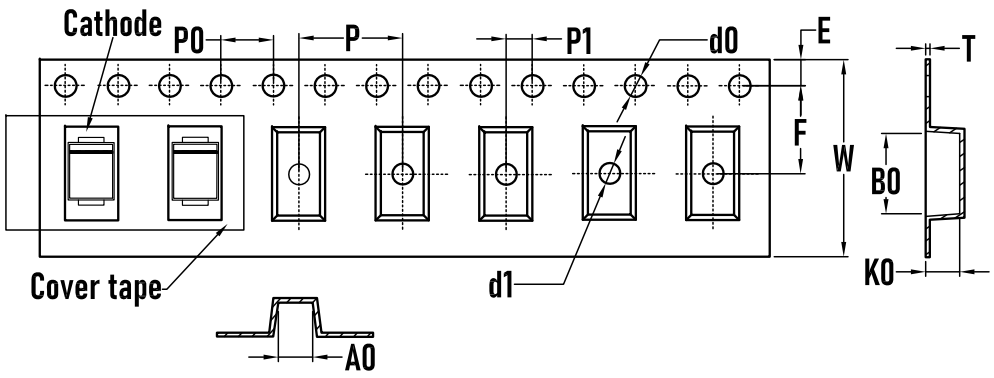
Rectifier Diode

Outline Drawing - SMB



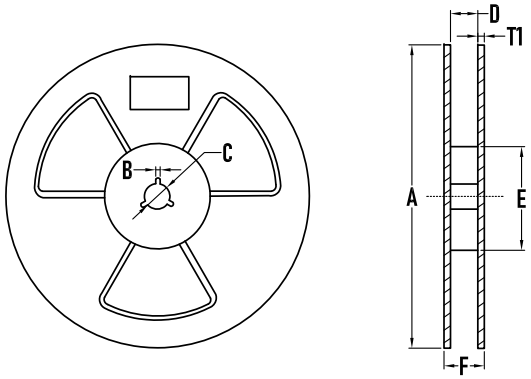
SYMBOL	MILLIMETER		Inches	
	MIN.	MAX.	MIN.	MAX.
D	3.3	3.9	0.130	0.154
D1	1.7	2.3	0.067	0.091
T	5.1	5.7	0.201	0.224
T1	0.8	1.6	0.031	0.063
d	–	0.3	–	0.012
H1	2.0	2.4	0.079	0.094
H	2.1	2.5	0.083	0.098
L	4.0	4.7	0.157	0.185

Packaging Tape - SMB



SYMBOL	MILLIMETER
A0	3.60±0.1
B0	5.45±0.1
d0	1.50±0.1
d1	1.50±0.1
E	1.75±0.1
F	5.50±0.1
K0	2.30±0.1
P	8.00±0.1
P0	4.00±0.1
P1	2.00±0.1
W	12.00±0.1
T	0.22±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	3000PCS

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