BORN SEMICONDUCTOR

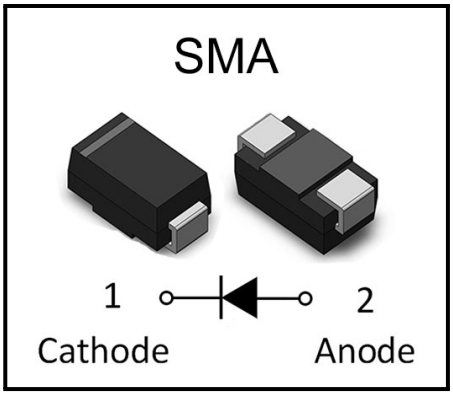
ES1A-ES1J

Fast Recovery Rectifier Diode

Features

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

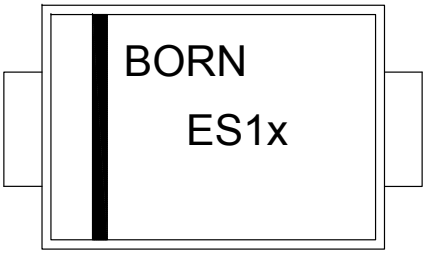
Package



Description

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

Making Code



Ordering information

Part Number	ES1A	ES1B	ES1D	ES1G	ES1J
Marking	ES1A	ES1B	ES1D	ES1G	ES1J
Base qty	5K	5K	5K	5K	5K

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Revision: 2022-Jan-1-A

ES1A-ES1J

Fast Recovery Rectifier Diode

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

Symbol	Parameter	ES1A	ES1B	ES1D	ES1G	ES1J	Unit
V_{RRM}	Maximum Recurrent Peak Reverse Voltage	50	100	200	400	600	V
V_{RMS}	Maximum RMS Voltage	35	70	140	280	420	V
V_{DC}	Maximum DC Blocking Voltage	50	100	200	400	600	V
$I_{(AV)}$	Maximum Average Forward Rectified Current at T_A = 55°C	1.0					A
I_{FSM}	Peak Forward Surge Current 8.3ms Single half sine-wave Superimposed on Rated Load(JEDEC Method)	30					A
V_F	Peak Forward Voltage at 1.0A DC	0.95			1.25	1.70	V
I_R	Maximum DC Reverse Current T_J = 25°C at Rated DC Blocking Voltage T_J = 100°C	5.0 100					uA
T_{RR}	Maximum Reverse Recovery Time(Note1)	35					nS
C_J	Typical Junction Capacitance(Note2)	30			25		pF
$R_{\theta JA}$	Typical Thermal Resistance	40					°C/W
T_J	Operating Temperature Range	-55 to +150					°C
T_{STG}	Storage Temperature Range	-55 to +150					°C

Notes:(1)Measured with I_F=0.5A,I_R=1A,I_{RR}=0.25A

(2)Measured at 1.0 MHz and applied reverse voltage of 4.0V DC

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ES1A-ES1J

Fast Recovery Rectifier Diode

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

Figure 1: Forward Current Derating Curve

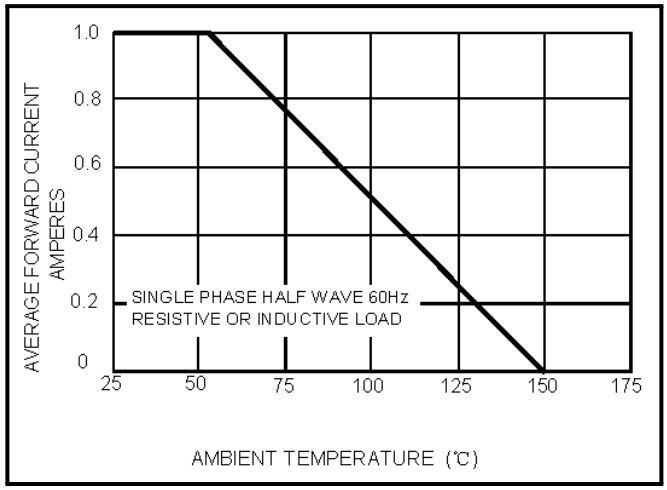


Figure 2: Maximum Non-Repetitive Surge Current

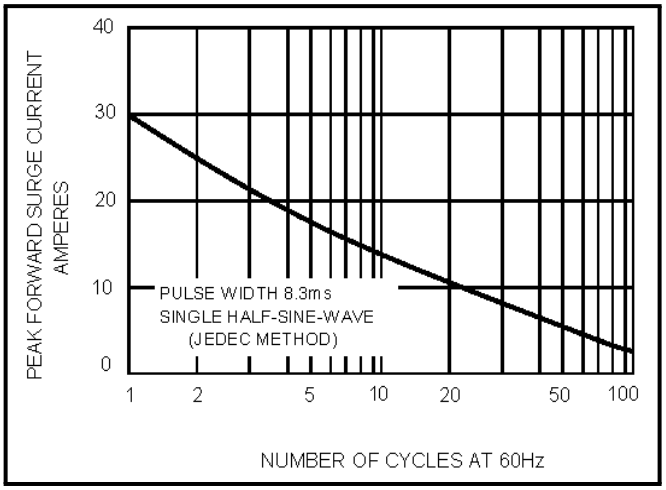


Figure 3: Typical Junction Capacitance

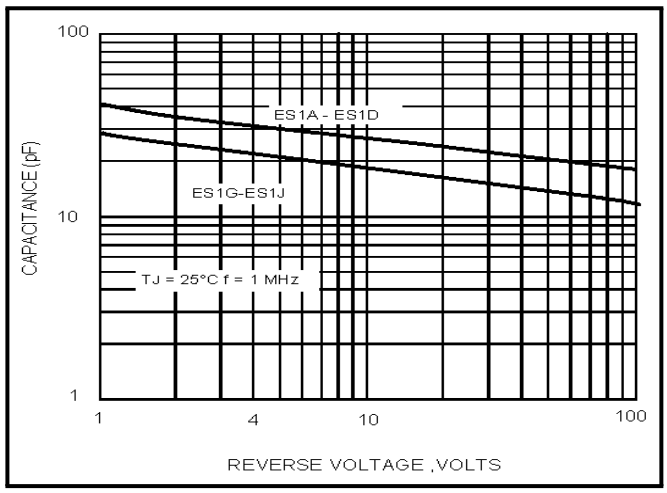
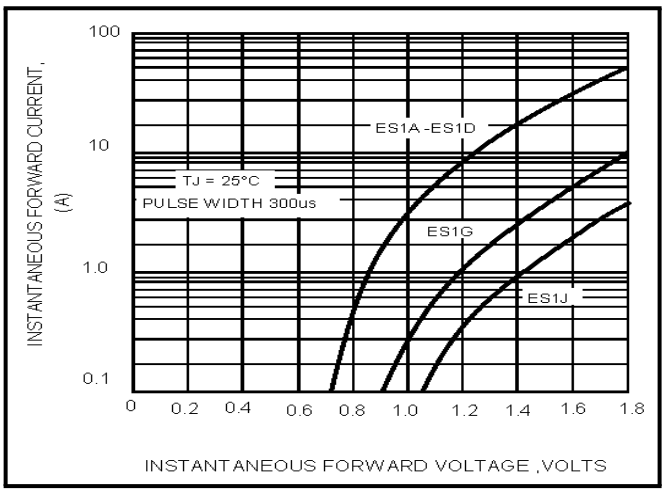


Figure 4: Typical Forward Characteristics



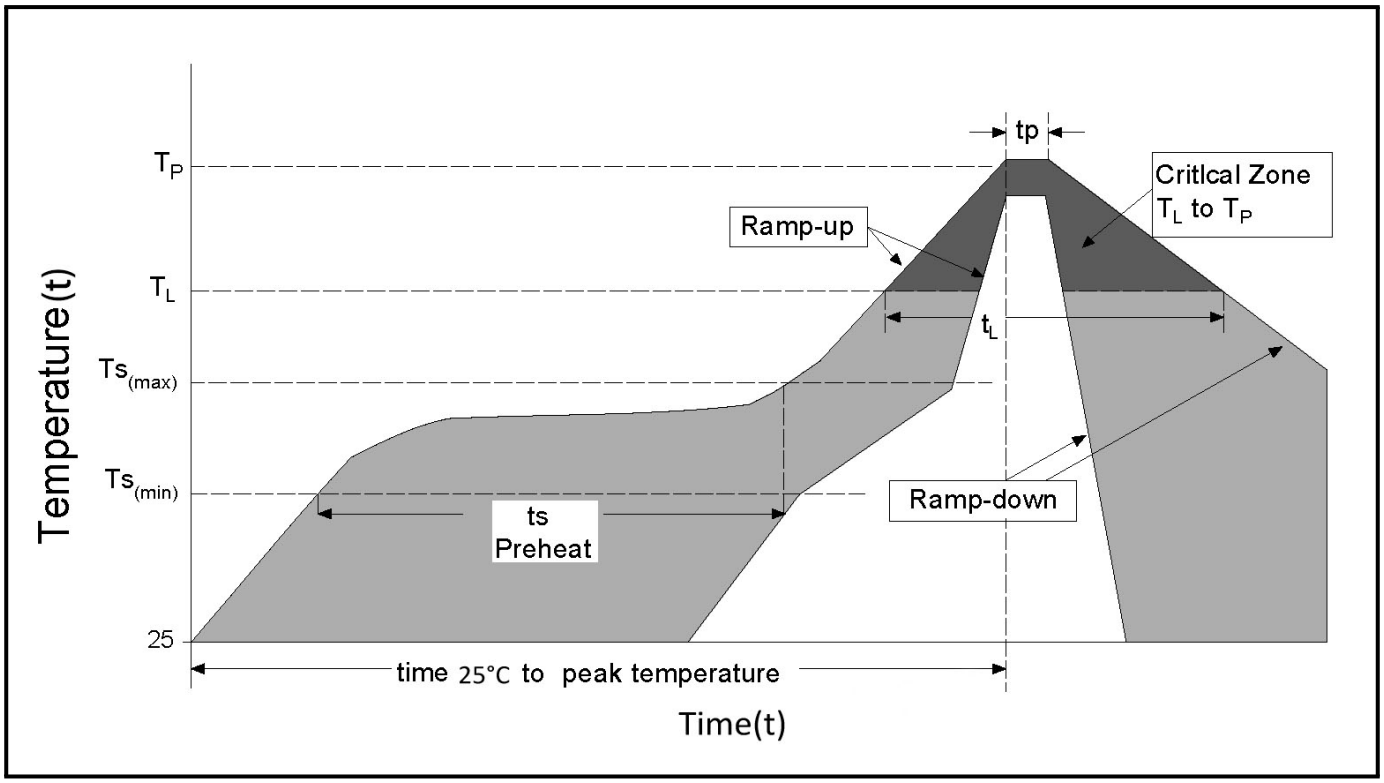
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ES1A-ES1J

Fast Recovery 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

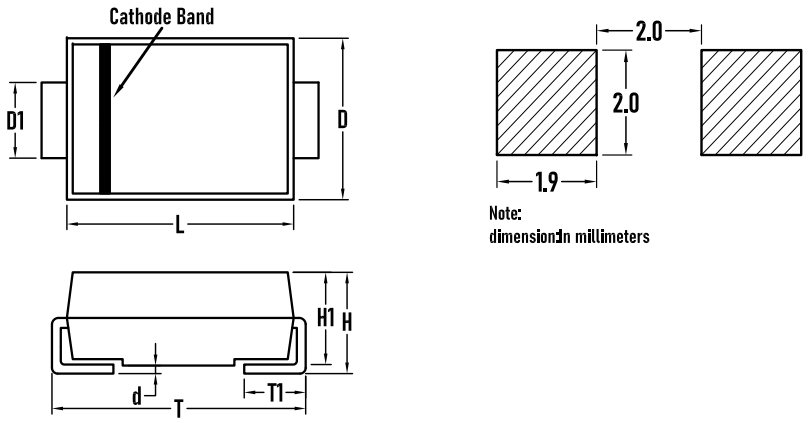
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ES1A-ES1J

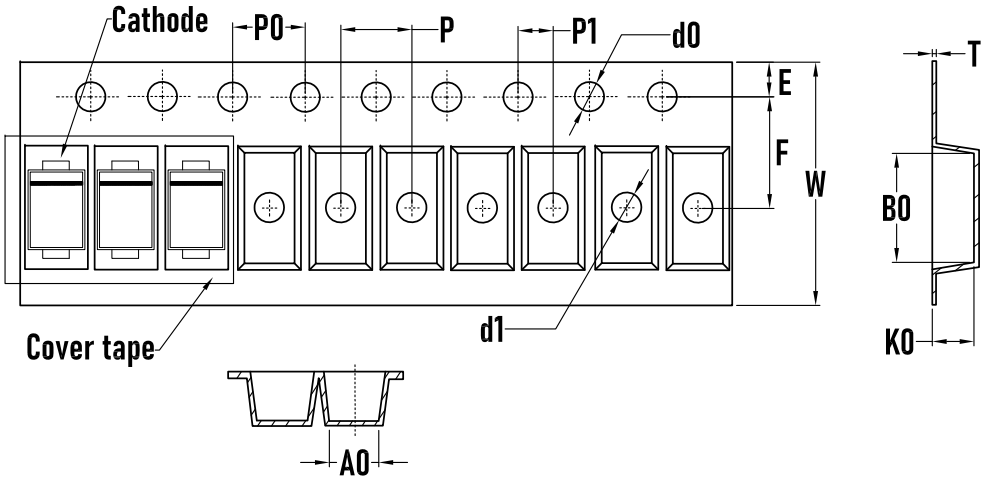
Fast Recovery Rectifier Diode

Outline Drawing - SMA



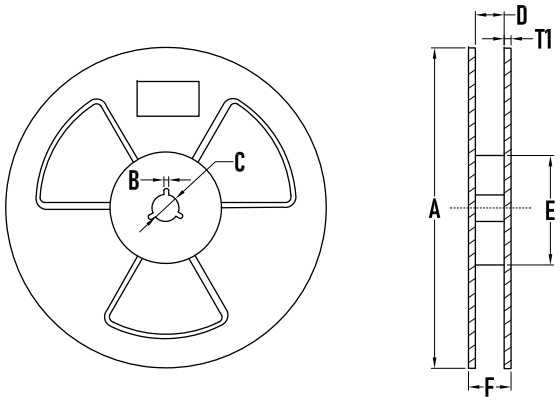
SYMBOL	MILLIMETER		Inches	
	MIN.	MAX.	MIN.	MAX.
D	2.5	2.9	0.098	0.114
D1	1.2	1.8	0.047	0.071
T	4.8	5.3	0.189	0.209
T1	0.8	1.5	0.031	0.059
d	–	0.2	–	0.008
H1	1.8	2.2	0.071	0.087
H	1.9	2.5	0.075	0.098
L	3.9	4.6	0.154	0.181

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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