ES3AB THRU ES3JB

3.0A Super Fast Recovery Rectifier

Characteristics

I_F	3	A
V_{RRM}	50~600	V
I_{FSM}	100	A
V_F	0.95~1.70	V

Features

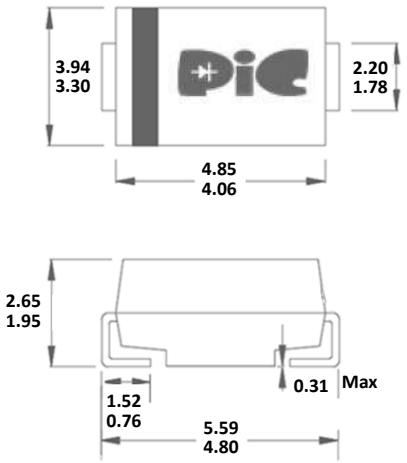
- The plastic package carries Underwriters Laboratory Flammability Classification 94V-0
- Super fast speed switching for high efficiency
- Low reverse leakage
- High forward surge current capability
- High temperature soldering guaranteed 260℃/10 seconds at terminals

Mechanical Data

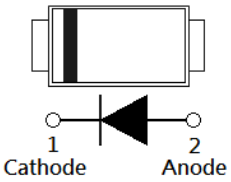
- Case: JEDEC SMB molded plastic body
- Terminals: Plated axial leads, solderable per MIL-STD-750, Method 2026
- Polarity: Color band denotes cathode end
- Mounting Position: Any
- Weight: Approx. 0.0035 ounce, 0.098 grams

Package Outline Dimensions

SMB



Dimensions in inches and millimeters



Maximum Ratings & Electrical Characteristic

Rating at 25 ℃ ambient temperature unless otherwise specified. Single phase half wave 60Hz, resistive or inductive load. For capacitive load current derate by 20%.

Parameter	Symbol	ES3AB	ES3BB	ES3DB	ES3GB	ES3JB	UNITS
Marking Code	-	ES3AB	ES3BB	ES3DB	ES3GB	ES3JB	-
Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	V
RMS Voltage	V_{RMS}	35	70	140	280	420	V
DC Blocking Voltage	V_R	50	100	200	400	600	V
Average Forward Current	$I_{F(AV)}$	3.0					A
Peak Forward Surge Current 8.3ms single half sine -wave superimposed on rated load (JEDEC Method)	I_{FSM}	100					A
Forward Voltage at 3.0A	V_F	0.95			1.25	1.70	V
DC Reverse Current at Rated DC Blocking Voltage T_A=25℃	I_R	10					μA
Typical Thermal Resistance (Note 1)	$R_{\Theta JA}$	47					℃/W
Operating Junction and Storage Temperature Range	T_J,T_{STG}	-55~+150					℃
Reverse Recovery Time (Note 2)	T_{rr}	35					nS

Notes:

(1) Thermal resistance from junction to ambient and from junction to lead mounted on P.C.B. with 0.2" x 0.2" (5.0mm x 5.0mm) copper pad areas.

(2) Reverse recovery time test condition: IF=0.5A IR=1.0A Irr=0.25A

Rating and Characteristics Curves

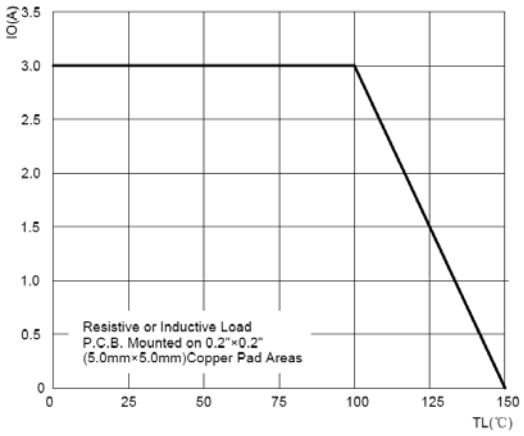


Fig. 1 Forward Current Derating Curve

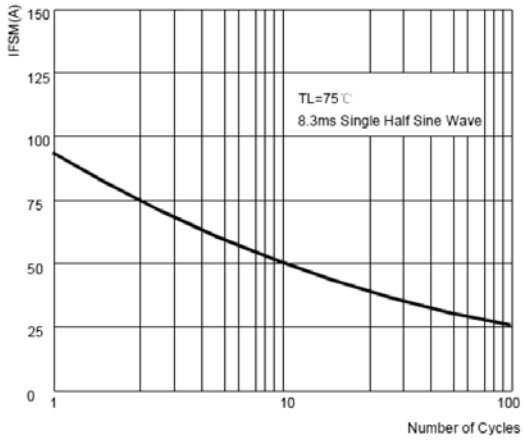


Fig. 2 Max. Non-Repetitive Peak Forward Surge Current

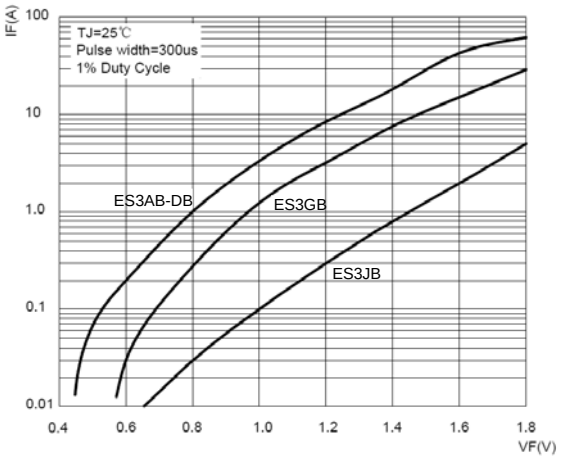


Fig. 3 Typical Forward Characteristics

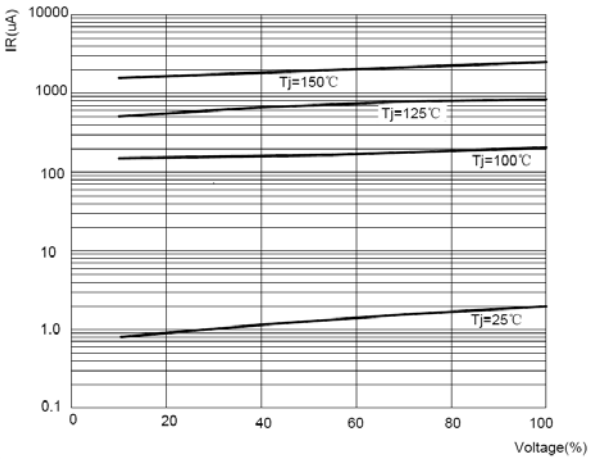
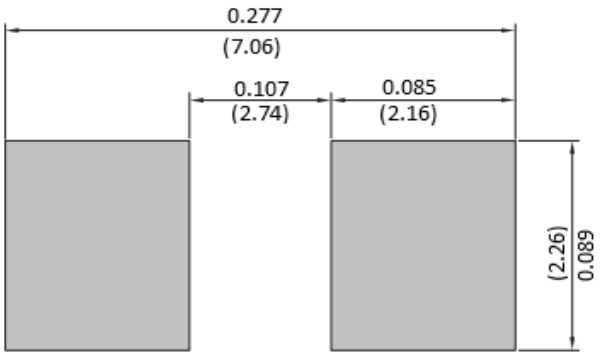


Fig. 4 Typical Reverse Characteristics

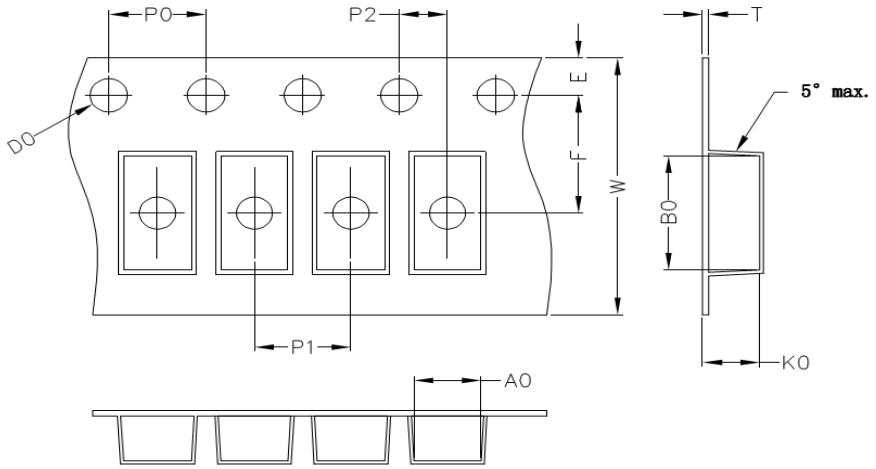
Suggested Pad Layout

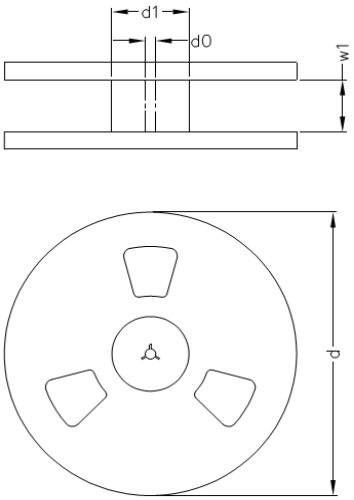


Unit: inch (mm)

Packaging Specifications

Package	A0 (mm)	B0 (mm)	K0 (mm)	D0 (mm)	E (mm)	F (mm)	P0 (mm)	P1 (mm)	P2 (mm)	T (mm)	W (mm)
SMA	2.8±0.1	5.33±0.1	2.36±0.1	1.55±0.1	1.75±0.1	5.50±0.1	4.0±0.1	4.0±0.01	2±0.1	0.25±0.1	9.4±0.1
SMB	3.8±0.1	5.40±0.1	2.45±0.1	1.55±0.1	1.75±0.1	5.50±0.1	4.0±0.1	8.0±0.01	2±0.1	0.25±0.1	9.4±0.1
SMC	6.05±0.1	8.31±0.1	2.54±0.1	1.55±0.1	1.75±0.1	7.50±0.1	4.0±0.1	8.0±0.05	2±0.1	0.25±0.1	12±0.1

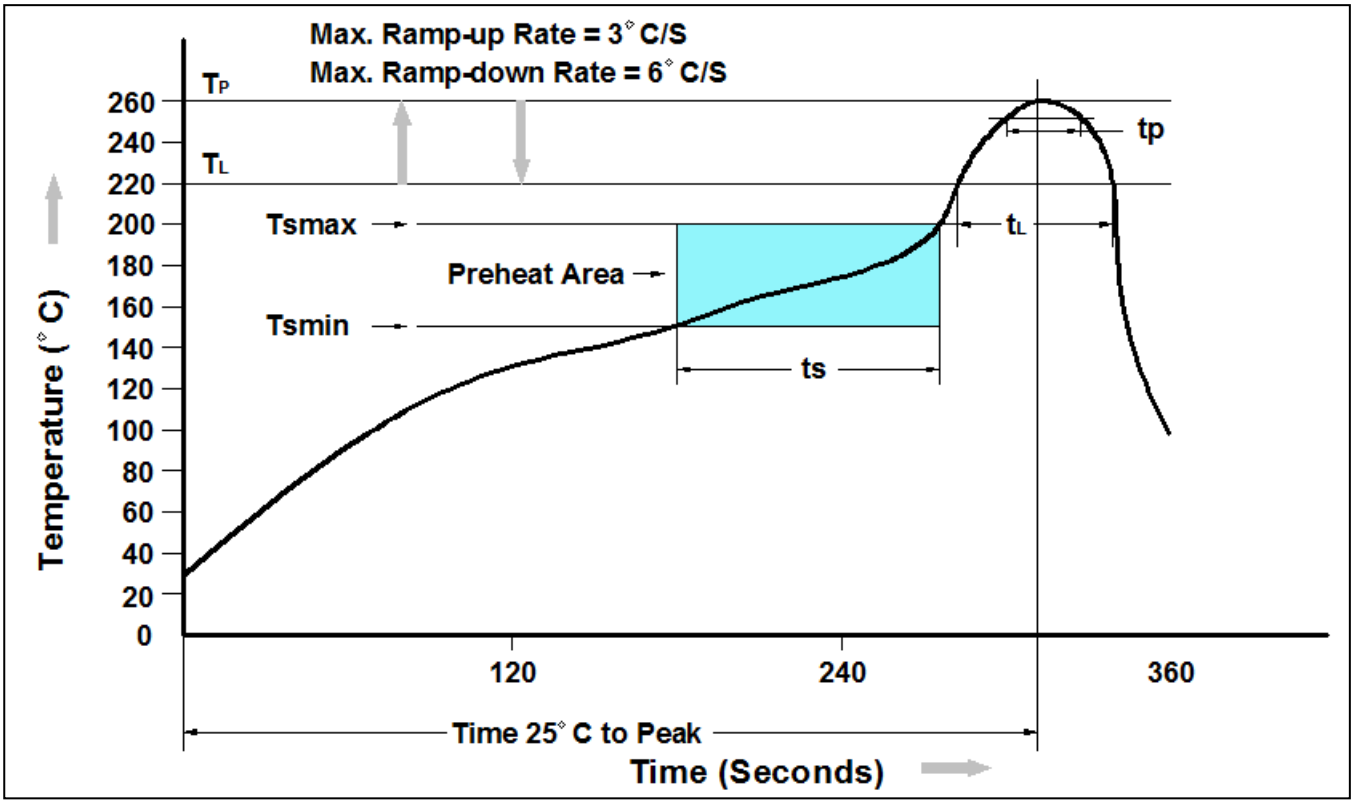




Package	D1 (mm)	D0 (mm)	W1 (mm)	D (mm)
SMA	75	13.5	13.5	330
SMB	75	13.5	13.5	330
SMC	75	13.5	17.0	330

NOTE：The tolerance of reel is ±2mm

Recommand IR Reflow Soldering Thermal Profile



Profile Feature	Pb-Free Assembly Profile
Temperature Min. (Tsmin)	150°C
Temperature Max. (Tsmax)	200°C
Time (ts) from (Tsmin to Tsmax)	60-120 seconds
Average Ramp-up Rate (tL to tP)	3°C/second max.
Liquidous Temperature (TL)	217°C
Time (tL) Maintained Above (TL)	60 – 150 seconds
Peak Temperature	260°C +0°C / -5°C
Time (tP) within 5°C of actual Peak Temperature	30 seconds
Ramp-down Rate (TP to TL)	6°C/second max
Time 25°C to Peak Temperature	8 minutes max.

Ordering Information

Part Number	Description	Quantity
ES3AB~ES3JB	SMB Reel	3000 pcs

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