

Super Fast Recovery Surface Mount Rectifiers

Features

- Low profile package
- For surface mounted applications
- Glass passivated chip junction
- High forward surge capability
- Super fast reverse recovery time
- High temperature soldering guaranteed
260 °C/10 seconds at terminals

Mechanical Data

- **Package:** DO-214AA (SMB)
Molding compound meets UL 94 V-0 flammability rating, RoHS-compliant, halogen-free
- **Terminals:** Tin plated leads, solderable per MIL-STD-750, Method 2026
- **Polarity:** Cathode line denotes the cathode end

Typical Applications

For use in high frequency rectification of power supplies, inverters, converters, and freewheeling diodes for consumer, and telecommunication.

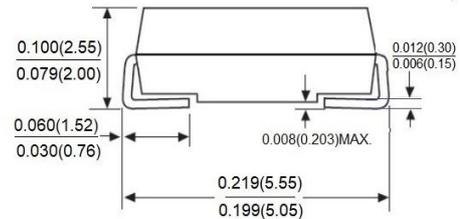
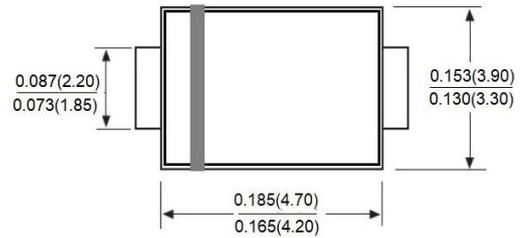
Reverse Voltage: 50 to 600V

Forward Current: 3.0 Amp

DO-214AA (SMB)

ROHS
COMPLIANT

HALOGEN
FREE



Dimensions in inches and (millimeters)



Package Outline Dimensions in Inches (Millimeters)

Maximum Ratings and Electrical Characteristics

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

Parameter&Test Conditions	SYM.	ES3AB	ES3BB	ES3CB	ES3DB	ES3FB	ES3GB	ES3JB	Unit	
Device marking code		ES3A	ES3B	ES3C	ES3D	ES3F	ES3G	ES3J		
Maximum Recurrent Peak Reverse Voltage	V _{RRM}	50	100	150	200	300	400	600	V	
Maximum RMS Voltage	V _{RMS}	35	70	105	140	210	280	420	V	
Maximum DC Blocking Voltage	V _{DC}	50	100	150	200	300	400	600	V	
Average rectified output current @60Hz sine wave, Resistance load, TL (FIG.1)	I _{O(AV)}	3.0								A
Peak Forward Surge Current 8.3ms Single Half Sine-wave Superimposed On Rated Load	I _{FSM}	100								A
Maximum Thermal Resistance, Junction To Ambient (Note 1)	R _{θJA}	65								°C/W
Operating junction and storage temperature range	T _j , T _{STG}	-55 to +150								°C

Electrical Characteristics (T_a=25°C Unless otherwise specified)

Parameter&Test Conditions	SYM.	ES3AB	ES3BB	ES3CB	ES3DB	ES3FB	ES3GB	ES3JB	Unit
Maximum Instantaneous Forward Voltage IFM =3A	V _{FM}	0.95			1.3		1.7		V
Maximum DC reverse current at rated DC blocking voltage	I _R	5							μA
		200							
Maximum reverse recovery time(Note 2)	T _{rr}	35							ns
Typical junction capacitance(Note 3)	C _J	60			35		29		pF

Notes:

1. Thermal resistance from junction to ambient and from junction to lead mounted on P.C.B. with 0.3" x 0.3" (8.0 mm x 8.0 mm) copper pad area.
2. Reverse recovery time test condition: IF=0.5A IR=1.0A I_{rr}=0.25A .
3. Measured at 1.0MHz and applied reverse voltage of 4.0V DC.
4. The typical data above is for reference only.

Rating and Characteristic Curves

FIG. 1- DERATING CURVE OUTPUT RECTIFIED

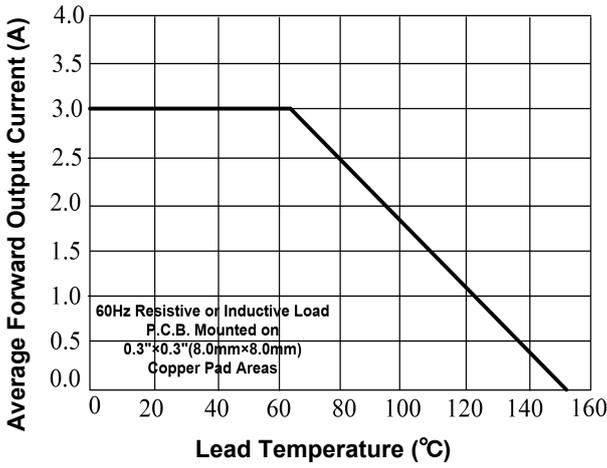


FIG. 2- -MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT PER LEG

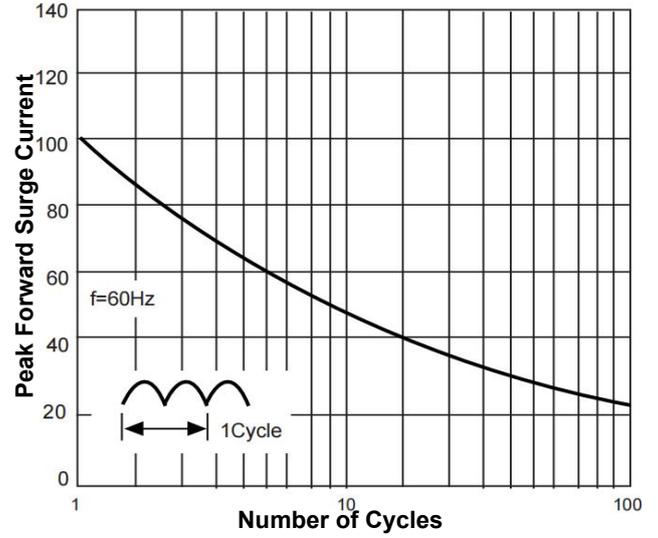


FIG. 3- TYPICAL FORWARD VOLTAGE

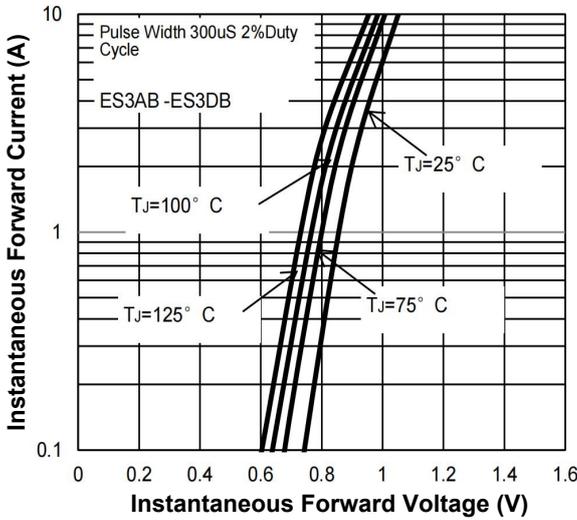


FIG. 4- TYPICAL FORWARD VOLTAGE

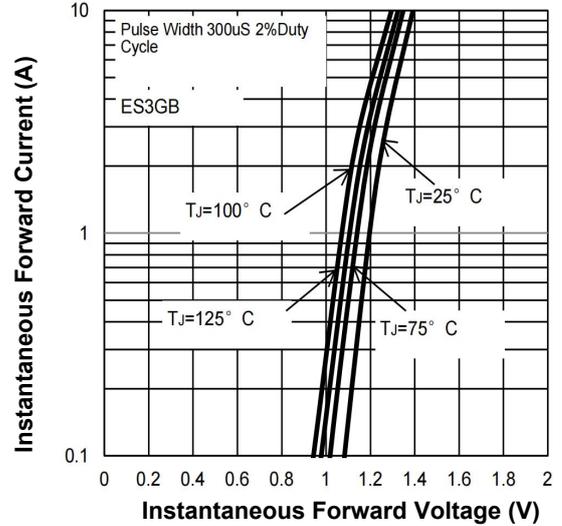


FIG. 5- TYPICAL FORWARD VOLTAGE

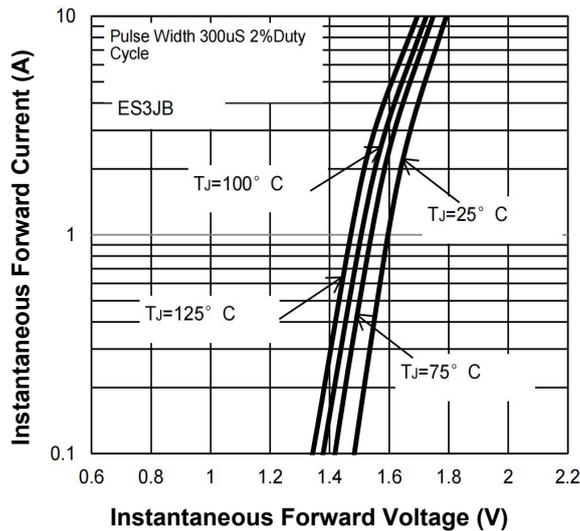
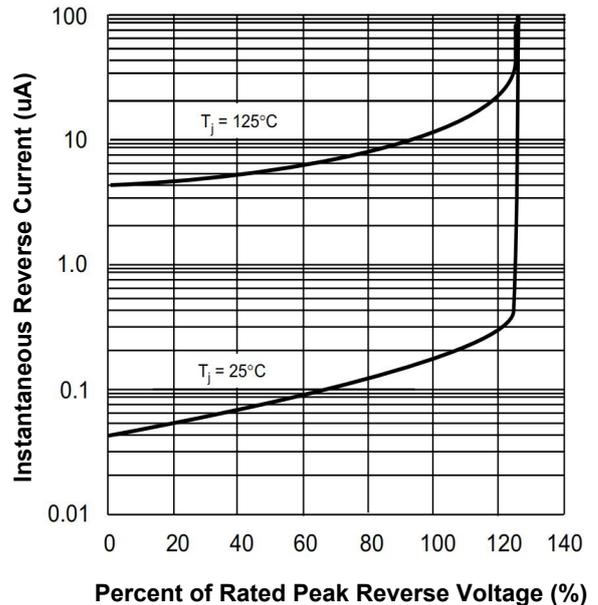


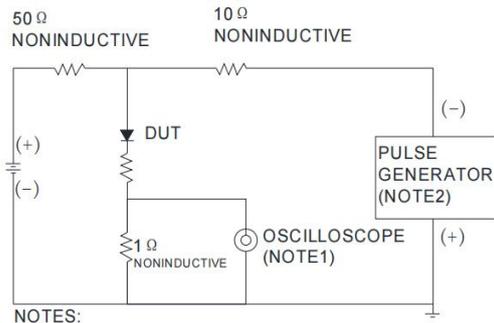
FIG. 6- TYPICAL REVERSE LEAKAGE



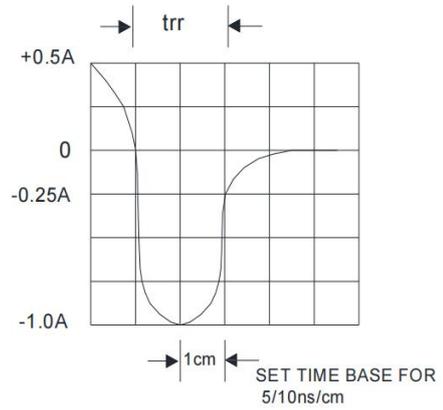
The curve above is for reference only.

Rating and Characteristic Curves

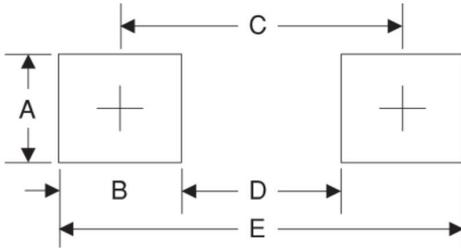
FIG. 7- Diagram of circuit and Testing wave form of reverse recovery



NOTES:
 1. Rise Time=7ns max .Input Impedance=1MΩ 22pf
 2. Rise Time=10ns max. Source Impedance=50 Ω



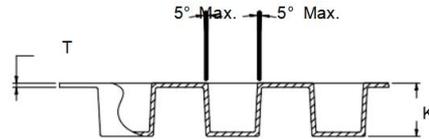
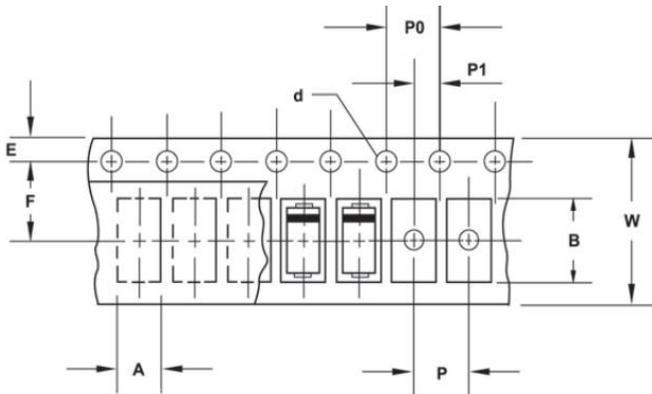
Recommended Pad Layout



SYMBOL	Millimeters
A	2.30
B	2.50
C	4.30
D	1.80
E	6.80

Package Information

Carrier Dimension(mm)



W	F	d	E
12.0	5.5	∅ 1.55	1.75
A	B	K	T
4.0	5.8	2.6	0.25
P0	P1	P	Tolerance
4.0	2.0	8.0	0.10

Package Specifications

Package	Reel Size	Reel DIA. (mm)	Q'TY/Reel (Kpcs)	Box Size (mm)	QTY/Box (Kpcs)	Carton Size (mm)	Q'TY/Carton (Kpcs)
SMB	13'	330	3	340	6	435*360*360	60

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