

## SURFACE MOUNT SUPERFAST RECOVERY RECTIFIERS

Reverse Voltage – 50 to 600 Volts

Forward Current – 3.0 Ampere

### Features

- Glass passivated junction chip
- For surface mounted application
- Low profile package
- Built-in strain relief
- Ideal for automated placement
- Easy pick and place
- Superfast recovery time for high efficiency
- Glass passivated chip junction
- High temperature soldering:  
260°C/10 seconds at terminals
- Plastic material used carries Underwriters
- Laboratory Classification 94V-0
- AEC-Q101 qualified (Automotive grade with suffix "Q".)



### Mechanical Data

- Cases: Molded plastic
- Terminals: Pure tin plated, lead free.
- Polarity: Indicated by cathode band
- Packing: 12mm tape per EIA STD RS-481

### Maximum Ratings and Electrical Characteristics

Rating at 25 °C ambient temperature unless otherwise specified.

Single phase, half wave, 60 Hz, resistive or inductive load.

For capacitive load, derate current by 20%

Type Number	Symbol	ES 3AB	ES 3BB	ES 3CB	ES 3DB	ES 3FB	ES 3GB	ES 3HB	ES 3JB	Units
Maximum Recurrent Peak Reverse Voltage	$V_{RRM}$	50	100	150	200	300	400	500	600	V
Maximum RMS Voltage	$V_{RMS}$	35	70	105	140	210	280	350	420	V
Maximum DC Blocking Voltage	$V_{DC}$	50	100	150	200	300	400	500	600	V
Maximum Average Forward Rectified Current See Fig. 1	$I_{(AV)}$	3.0								A
Peak Forward Surge Current, 8.3 ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method )	$I_{FSM}$	100								A
Maximum Instantaneous Forward Voltage @ 3.0A	$V_F$	0.95			1.3		1.7			V
Maximum DC Reverse Current @ $T_A=25^\circ\text{C}$ at Rated DC Blocking Voltage @ $T_A=100^\circ\text{C}$	$I_R$	5 350								uA uA
Maximum Reverse Recovery Time ( Note 1 )	$T_{rr}$	35								nS
Typical Junction Capacitance ( Note 2 )	$C_j$	25			20					pF
Maximum Thermal Resistance (Note 3)	$R_{\theta JA}$	75								°C /W
Operating Temperature Range	$T_j$	-55 to +150								°C
Storage Temperature Range	$T_{STG}$	-55 to +150								°C

- Notes:
1. Reverse Recovery Test Conditions:  $I_F=0.5A$ ,  $I_R=1.0A$ ,  $I_{RR}=0.25A$
  2. Measured at 1 MHz and Applied  $V_R=4.0$  Volts
  3. Units Mounted on P.C.B. 0.4" x 0.4" (10mm x 10mm) Pad Areas

RATING AND CHARACTERISTIC CURVES

FIG.1- MAXIMUM FORWARD CURRENT DERATING CURVE

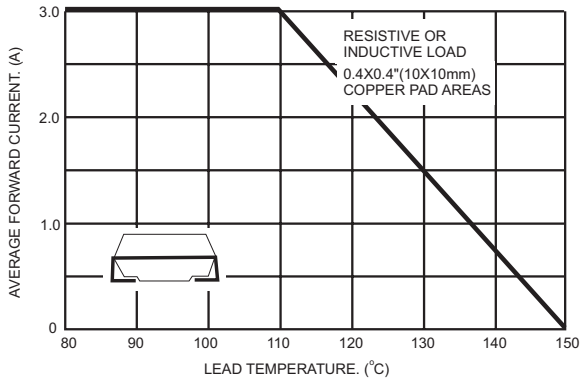


FIG.3- MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

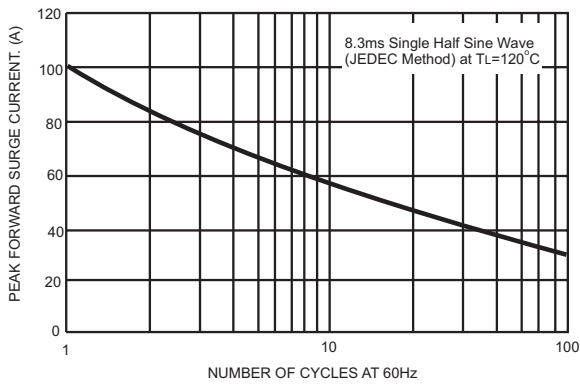


FIG.4- TYPICAL JUNCTION CAPACITANCE

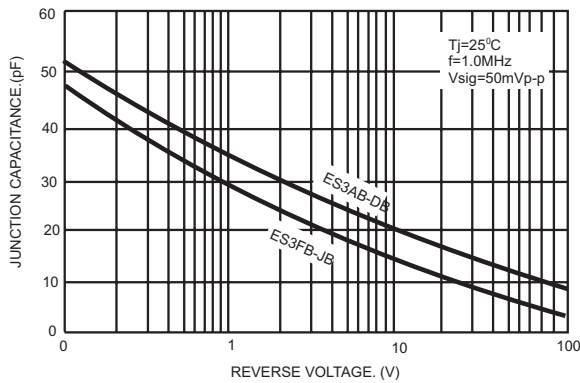


FIG.2- TYPICAL REVERSE CHARACTERISTICS

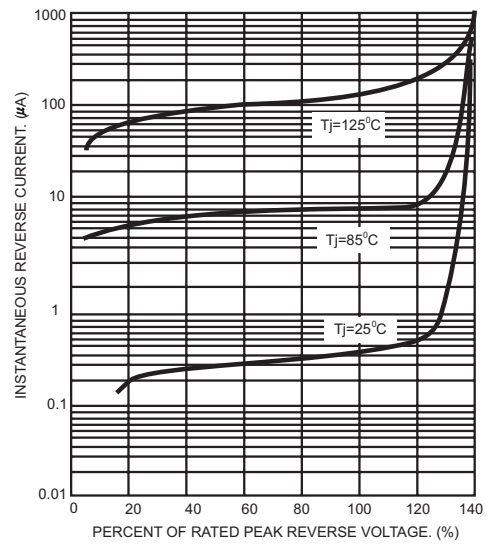


FIG.5- TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

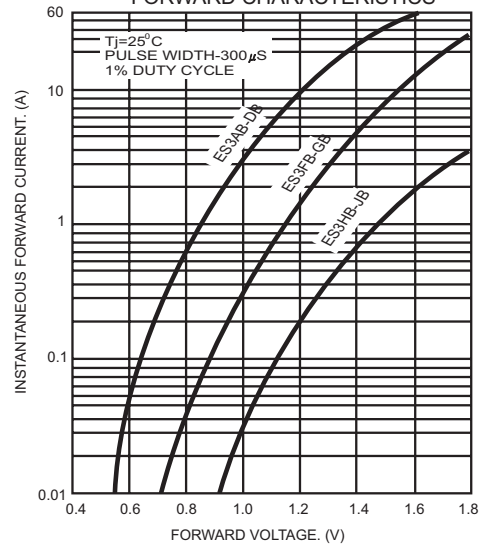
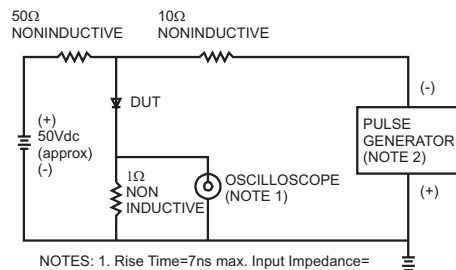
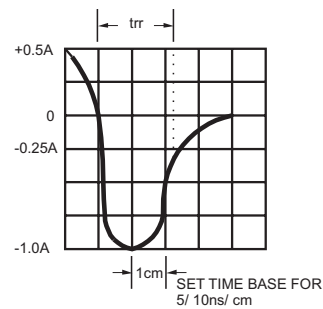


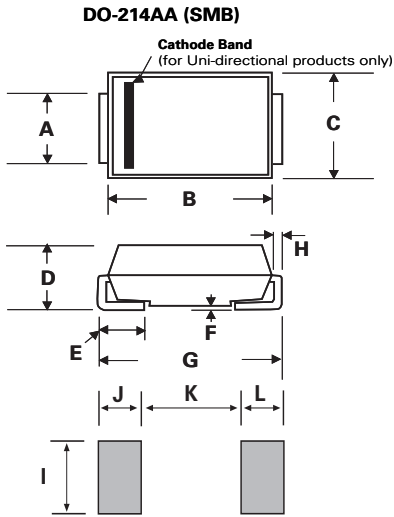
FIG.6- REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM



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



Dimensions

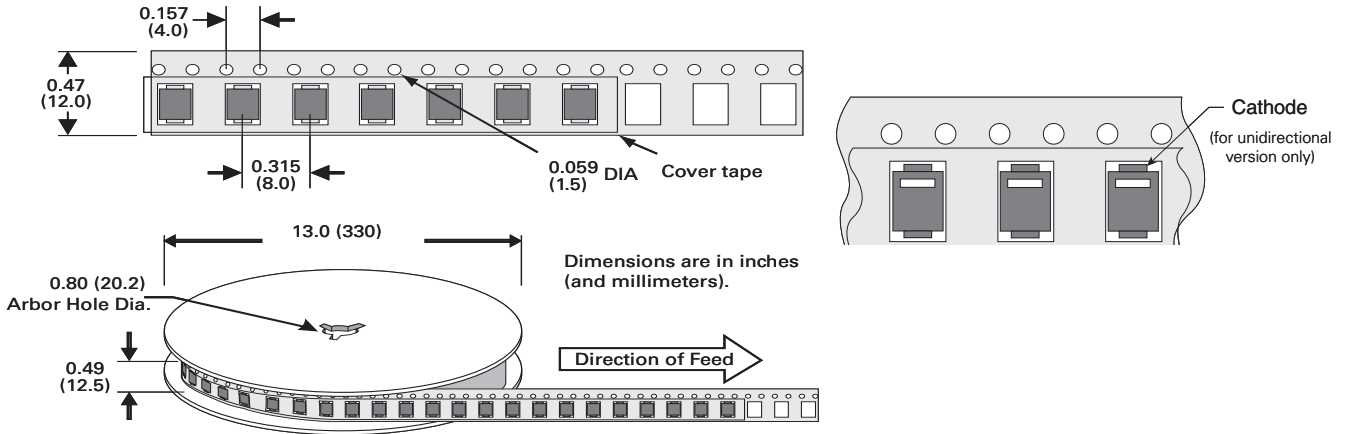


Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.066	0.091	1.700	2.300
B	0.160	0.191	4.060	4.850
C	0.130	0.155	3.300	3.940
D	0.083	0.098	2.100	2.500
E	0.030	0.060	0.760	1.520
F	-	0.011	-	0.300
G	0.200	0.220	5.08	5.590
H	0.006	0.012	0.152	0.310
I	0.082	-	2.100	-
J	0.070	-	1.800	-
K	-	0.107	-	2.740
L	0.070	-	1.800	-

Ordering Information

Part number	Component Package	Quantity	Packaging Option	Packaging Specification
ES3XB	DO-214AA	3000	Tape & Reel - 12mm tape/13" reel	EIA STD RS-481

Tape and Reel Specification



Note: Devices are packed in accordance with EIA standard RS-481-A and specification given above.