

DATA SHEET

SUPER FAST RECOVERY RECTIFIER GENERAL PURPOSE

ES1 SERIES

RoHS compliant & Halogen free

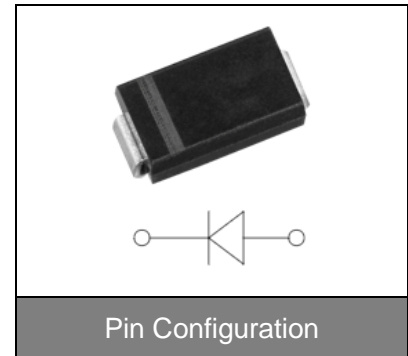
Product specification— July 26, 2023 V.0



Super Fast Recovery Rectifier Data Sheet

Features

- Low profile package
- Ideal for automated placement
- Glass passivated chip junction
- High forward surge capability
- Super fast reverse recovery time $t_{rr_{max}}:35ns$
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C



Typical Applications

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

Mechanical Data

- Package: DO-214AC (SMA) Molding compound meets UL 94 V-0 flammability rating, RoHS-compliant, halogen-free
- Terminals: Tin plated leads, solderable per J-STD-002 and JESD22-B102
- Polarity: Cathode line denotes the cathode end

Maximum Ratings (Ta=25°C Unless otherwise specified)

PARAMETER	SYMBOLS	ES1A	ES1B	ES1D	ES1G	ES1J	UNITS
Marking Code	/	ES1A	ES1B	ES1D	ES1G	ES1J	/
Maximum Repetitive Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	V
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	V
Maximum DC blocking Voltage	V_{DC}	50	100	200	400	600	V
Average rectified output current @ 60Hz sine wave, Resistance load, TL (FIG.1)	I_o	1.0					A
Forward Surge Current (Non-repetitive) @60Hz Half-sine wave, 1 cycle, Tj=25°C	I_{FSM}	30					A
Forward Surge Current (Non-repetitive) @1ms, square wave, 1 cycle, Tj=25°C	I^2t	3.7					A ² s
Typical Thermal Resistance	$R_{\theta J-A}^{(1)}$	85					°C/W
Storage temperature	T_{Stg}	-55 ~ +150					°C
Junction temperature	T_j	-55 ~ +150					°C

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

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

PARAMETER	SYMBOLS	TEST CONDITIONS	ES1A	ES1B	ES1D	ES1G	ES1J	UNITS
Maximum instantaneous forward voltage	V_F	$I_{FM}=1.0A$	0.95			1.3	1.7	V
Maximum reverse recovery time	t_{rr}	$I_F=0.5A, I_R=1.0A$ $, I_{rr}=0.25A$	35					ns
Maximum DC reverse current at rated DC blocking voltage	I_R	@ $T_a=25^\circ C$	5.0					uA
		@ $T_a=125^\circ C$	200					

Typical Characteristics Curves

Figure 1. Io-TL Curve

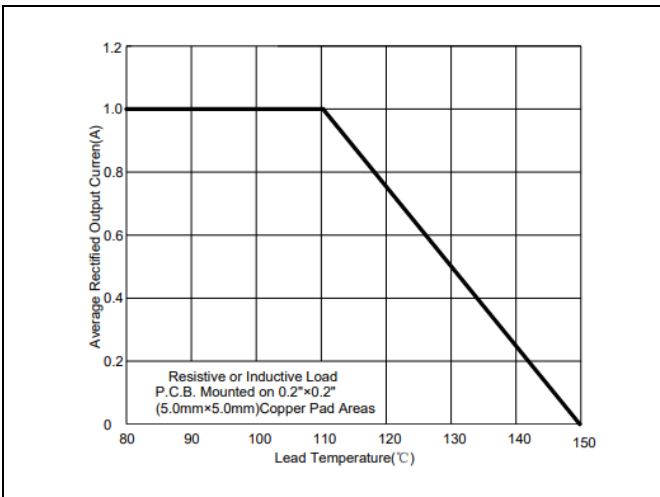


Figure 1. Surge Forward Current Capability

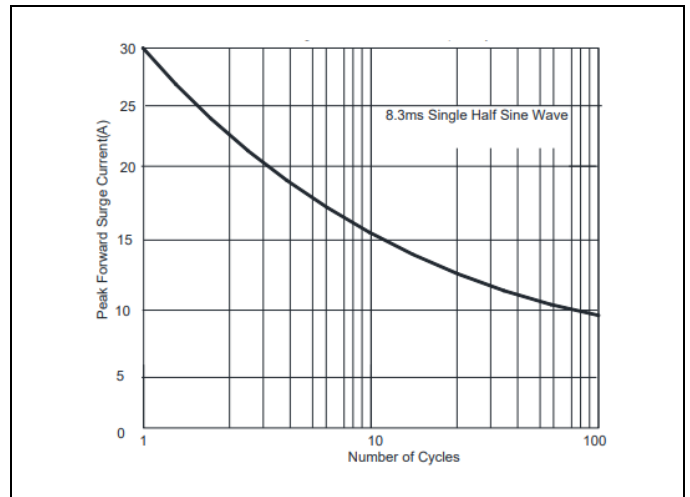


Figure 3. Typical Forward Voltage

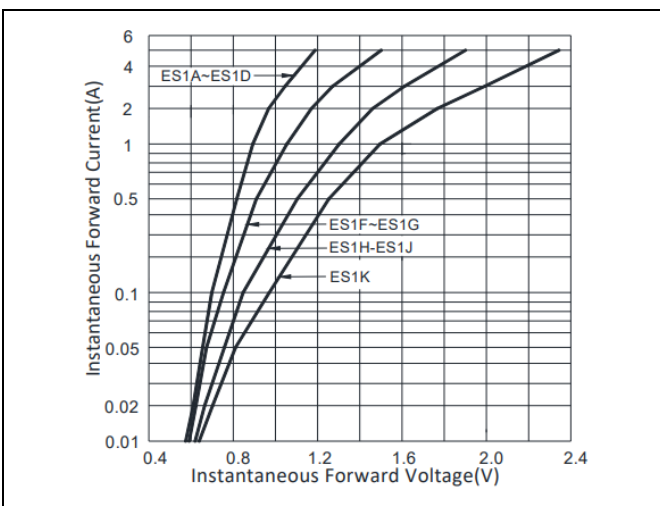


Figure 4. Typical Reverse Characteristics

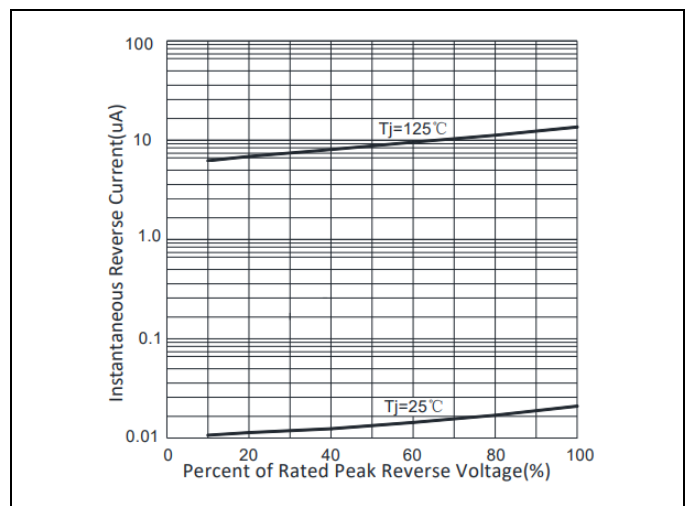
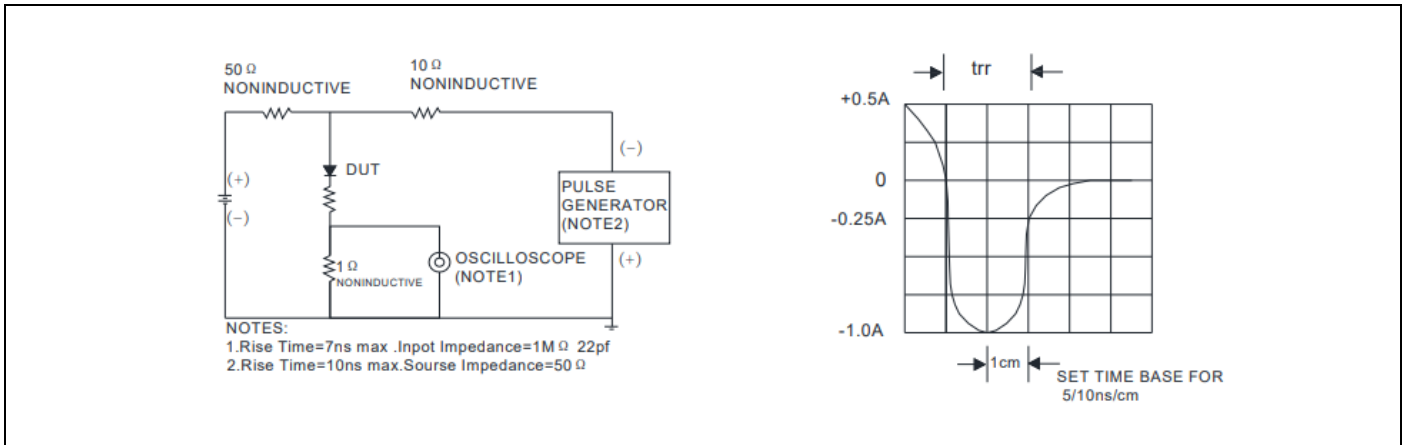


Figure 5. Diagram of circuit and Testing wave form of reverse recovery time



Dimensions (SMA /DO-214AC)

Product	Symbol	Millimeters		Inches		
		Min.	Max.	Min.	Max.	
	L	3.99	4.75	0.157	0.187	
	D	2.40	2.83	0.095	0.112	
	D1	1.20	1.65	0.047	0.065	
	T	4.93	5.66	0.194	0.223	
	T1	0.76	1.52	0.030	0.060	
	d	0.15	0.31	0.006	0.012	
	H	1.90	2.42	0.075	0.095	
	Pad:					
			1.96mm	1.66mm	1.96mm	2.04mm

Packaging

Tape	Symbol	Dimension (mm)
	W	12.0±0.15
	P0	4.00±0.10
	P1	4.00±0.10
	P2	2.00±0.10
	D0	Φ1.55±0.05
	D1	Φ1.55±0.05
	E	1.75±0.05
	F	5.50±0.10
	A0	2.79±0.10
	B0	5.33±0.10
	K0	2.36±0.10
	T	0.22±0.10
	<p>13" Reel</p>	D5
D6		Φ17.0+1/-0.50
H		3.0max.
W2		16.0±0.50
Quantity: 5000pcs		

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