

Silicon Diode

ES1B

Ultra Fast Efficient Rectifier

100V / 1A

DATASHEET

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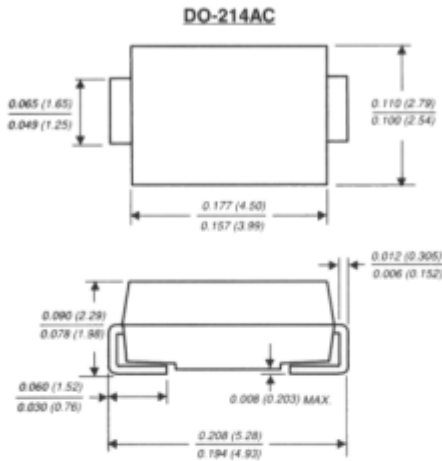
OEM – General Semiconductor

Source: General Semiconductor Databook 1998

ES1A THRU ES1D

SURFACE MOUNT ULTRAFAST EFFICIENT PLASTIC RECTIFIER

Reverse Voltage - 50 to 200 Volts Forward Current - 1.0 Ampere



Dimensions in inches and (millimeters)

FEATURES

- ◆ Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- ◆ For surface mount applications
- ◆ Low profile package
- ◆ Ideally suited for use in very high frequency switching power supplies, inverters and as a free wheeling diodes
- ◆ Ultrafast recovery times for high efficiency
- ◆ Low forward voltage
- ◆ Low leakage current
- ◆ Glass passivated chip junction
- ◆ High temperature soldering guaranteed: 250°C/10 seconds on terminals



MECHANICAL DATA

Case: JEDEC DO-214AC molded plastic body over passivated chip
Terminals: Solder plated, solderable per MIL-STD-750, Method 2026
Polarity: Color band denotes cathode end
Weight: 0.002 ounces, 0.064 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

	SYMBOLS	ES1A	ES1B	ES1C	ES1D	UNITS
Device marking code		EA	EB	EC	ED	
Maximum repetitive peak reverse voltage	VRRM	50	100	150	200	Volts
Maximum RMS voltage	VRMS	35	70	105	140	Volts
Maximum DC blocking voltage	VDC	50	100	150	200	Volts
Maximum average forward rectified current at T _L =120°C	I(AV)	1.0				Amp
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	IFSM	30.0				Amps
Maximum instantaneous forward voltage at 0.6A at 1.0A	V _F	0.865 0.920				Volts
Maximum DC reverse current at rated DC blocking voltage T _A =25°C T _A =100°C	I _R	5.0 100				µA
Maximum reverse recovery time (NOTE 1)	t _{rr}	15.0				ns
Maximum reverse recovery time (NOTE 2) T _A =25°C T _A =100°C	t _{rr}	25.0 35.0				ns
Maximum stored charge (NOTE 2) T _A =25°C T _A =100°C	Q _{rr}	10.0 25.0				nC
Typical junction capacitance (NOTE 3)	C _J	7.0				pF
Maximum thermal resistance (NOTE 4)	R _{θJA} R _{θJL}	85.0 35.0				°C/W
Operating and storage temperature range	T _J , T _{STG}	-55 to +150				°C

NOTES:

- 1 Reverse recovery test conditions: I_F=0.5A, I_R=1.0A, I_T=0.25A
- 2 I_R and Q_{rr} measured at: I_F=0.6A, V_R=30V, dI/dt=50A/µs, I_T=10% I_{RM} for measurement of I_T
- 3 Measured at 1.0 MHz and applied reverse voltage of 4.0 volts
- 4 P.C.B. mounted on 0.2 x 0.2" (5.0 x 5.0mm) copper pad area

RATINGS AND CHARACTERISTIC CURVES ES1A THRU ES1D

FIG. 1 - MAXIMUM FORWARD CURRENT DERATING CURVE

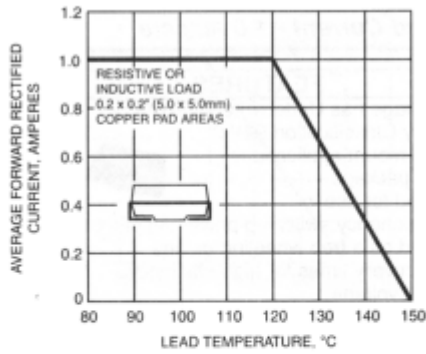


FIG. 2 - MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

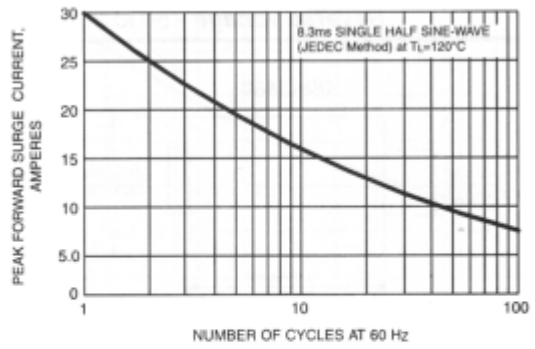


FIG. 3 - TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

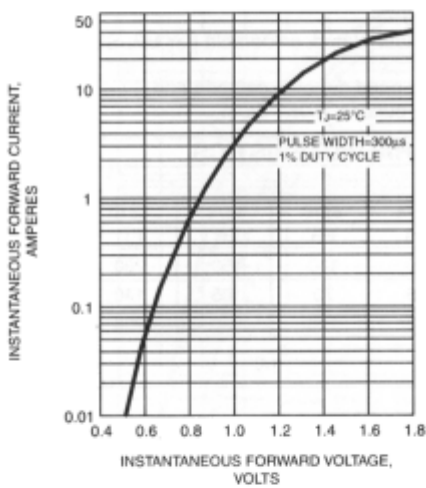


FIG. 4 - TYPICAL REVERSE LEAKAGE CHARACTERISTICS

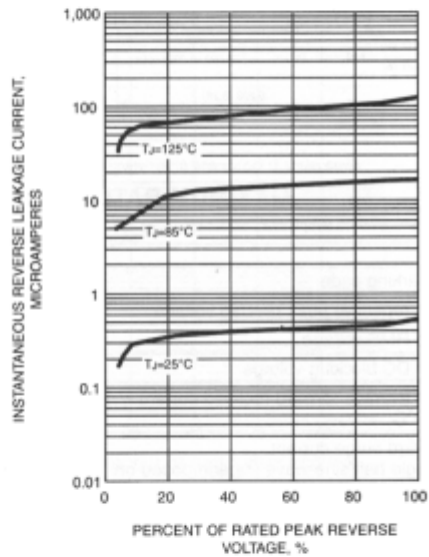


FIG. 5 - TYPICAL JUNCTION CAPACITANCE

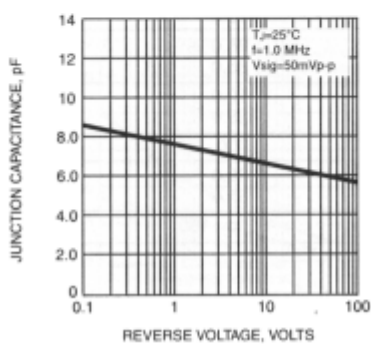


FIG. 5 - TYPICAL THERMAL IMPEDANCE

