

Silicon Diode

ES1A

Ultra Fast Efficient Rectifier

50V / 1A

DATASHEET

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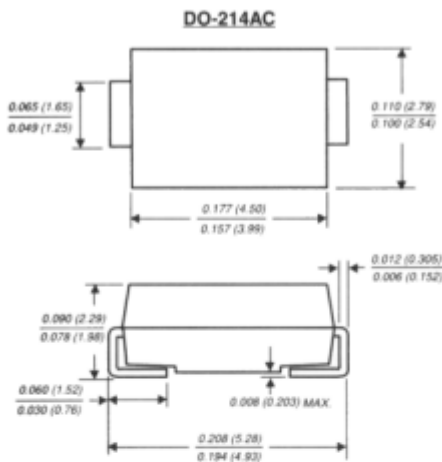
OEM – General Semiconductor

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	V _{RRM}	50	100	150	200	Volts
Maximum RMS voltage	V _{RMS}	35	70	105	140	Volts
Maximum DC blocking voltage	V _{DC}	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)	I _{FSM}	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

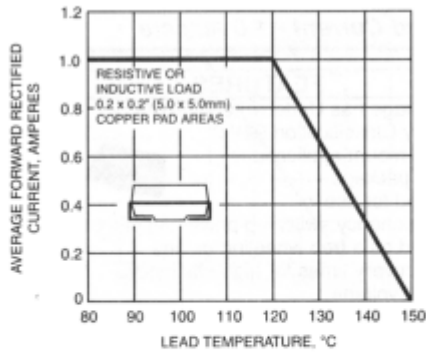


FIG. 2 - MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

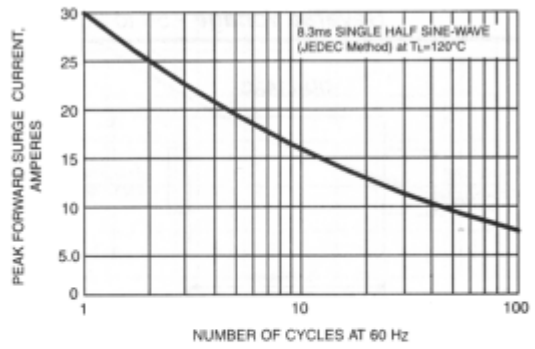


FIG. 3 - TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

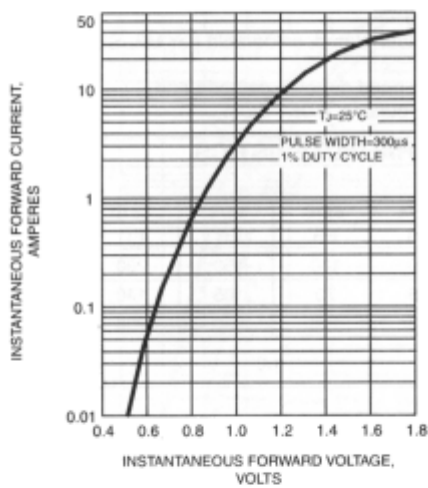


FIG. 4 - TYPICAL REVERSE LEAKAGE CHARACTERISTICS

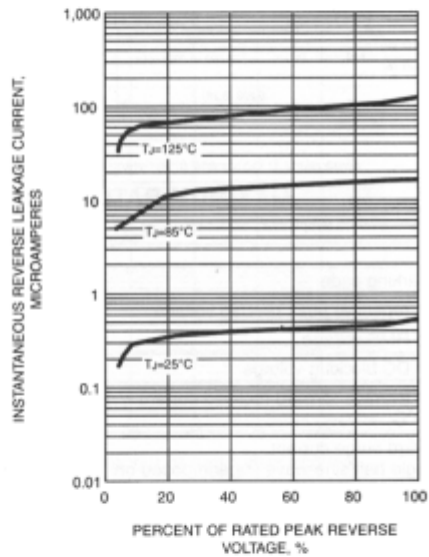


FIG. 5 - TYPICAL JUNCTION CAPACITANCE

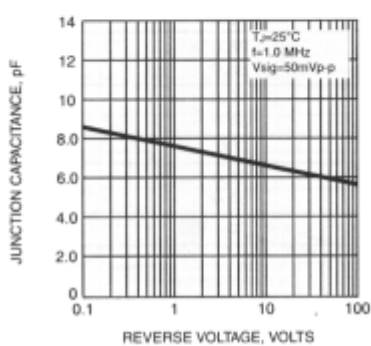


FIG. 5 - TYPICAL THERMAL IMPEDANCE

