



ES1A THRU ES1J

SURFACE MOUNT SUPER FAST RECTIFIER

Reverse Voltage - 50 to 600 Volts Forward Current - 1.0 Ampere

FEATURES

- ◆ The plastic package carries Underwriters Laboratory Flammability Classification 94V-0
- ◆ For surface mounted applications
- ◆ Low reverse leakage
- ◆ Built-in strain relief, ideal for automated placement
- ◆ High forward surge current capability
- ◆ High temperature soldering guaranteed: 250°C/10 seconds at terminals
- ◆ Glass passivated chip junction

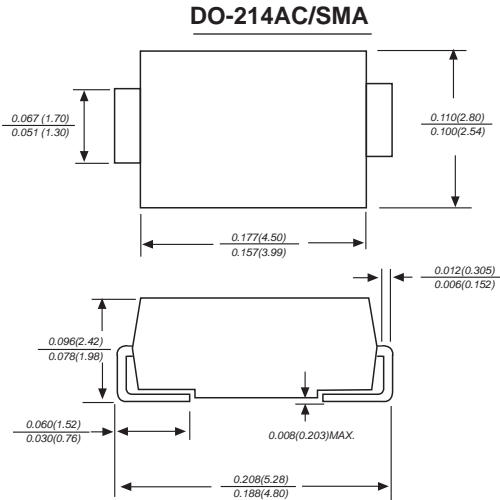
MECHANICAL DATA

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

Mounting Position: Any

Weight: 0.002 ounce, 0.07 grams



Dimensions in inches and (millimeters)

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

Single phase half-wave 60Hz, resistive or inductive load, for capacitive load current derate by 20%.

MDD Catalog Number	SYMBOLS	ES1A	ES1B	ES1C	ES1D	ES1E	ES1G	ES1J	UNITS
Maximum repetitive peak reverse voltage	V_{RRM}	50	100	150	200	300	400	600	VOLTS
Maximum RMS voltage	V_{RMS}	35	70	105	140	210	280	420	VOLTS
Maximum DC blocking voltage	V_{DC}	50	100	150	200	300	400	600	VOLTS
Maximum average forward rectified current at $T_L=55^\circ\text{C}$	$I_{(AV)}$	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 1.0A	V_F	0.95			1.25		1.7		Volts
Maximum DC reverse current $T_A=25^\circ\text{C}$ at rated DC blocking voltage $T_A=100^\circ\text{C}$	I_R	5.0 50.0							μA
Maximum reverse recovery time (NOTE 1)	t_{rr}	35							ns
Typical junction capacitance (NOTE 2)	C_J	15.0							pF
Typical thermal resistance (NOTE 3)	$R_{\theta JA}$	60.0							$^\circ\text{C/W}$
Operating junction and storage temperature range	T_J, T_{STG}	-50 to +150							$^\circ\text{C}$

Note: 1. Reverse recovery condition $I_F=0.5A, I_R=1.0A, I_{rr}=0.25A$

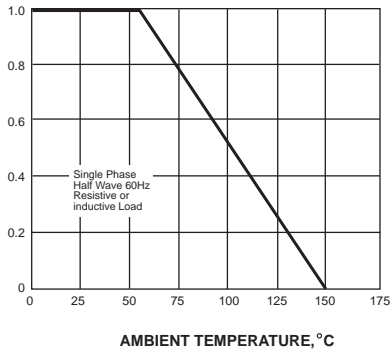
2. Measured at 1MHz and applied reverse voltage of 4.0V D.C.

3. P.C.B. mounted with 0.2x0.2" (5.0x5.0mm) copper pad areas

RATINGS AND CHARACTERISTIC CURVES ES1A THRU ES1J

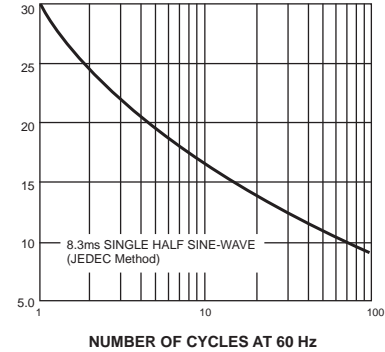
AVERAGE FORWARD RECTIFIED CURRENT,
AMPERES

FIG. 1- FORWARD CURRENT DERATING CURVE



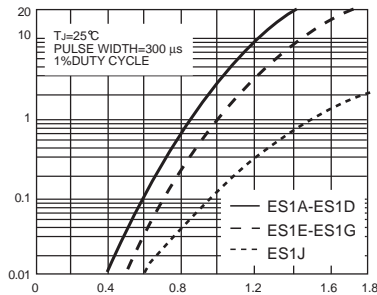
PEAK FORWARD SURGE CURRENT,
AMPERES

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



INSTANTANEOUS FORWARD CURRENT, AMPERES

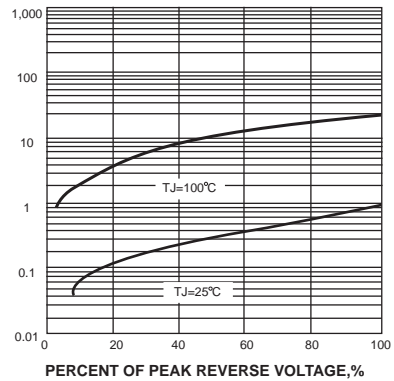
FIG. 3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS



INSTANTANEOUS FORWARD VOLTAGE,
VOLTS

INSTANTANEOUS REVERSE CURRENT,
MICROAMPERES

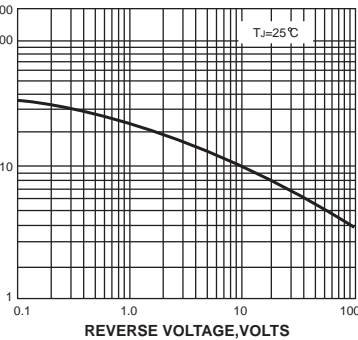
FIG. 4-TYPICAL REVERSE CHARACTERISTICS



PERCENT OF PEAK REVERSE VOLTAGE, %

JUNCTION CAPACITANCE, pF

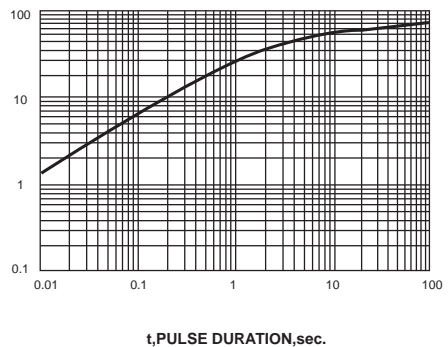
FIG. 5-TYPICAL JUNCTION CAPACITANCE



REVERSE VOLTAGE, VOLTS

TRANSIENT THERMAL IMPEDANCE,
 $^\circ\text{C}/\text{W}$

FIG. 6-TYPICAL TRANSIENT THERMAL IMPEDANCE



t, PULSE DURATION, sec.