

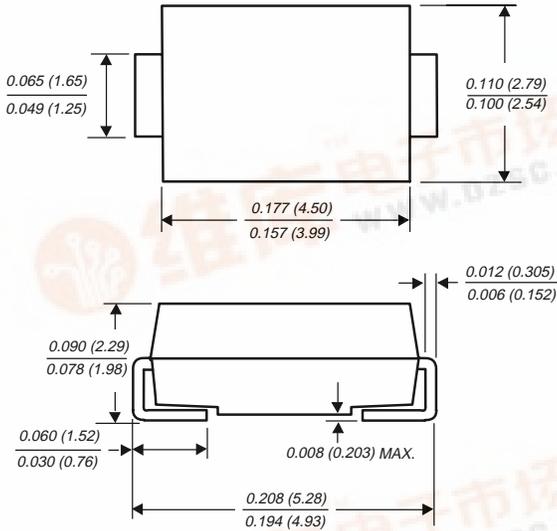
# ES1A THRU ES1D

## SURFACE MOUNT ULTRAFAST EFFICIENT PLASTIC RECTIFIER

Reverse Voltage - 50 to 200 Volts

Forward Current - 1.0 Ampere

DO-214AC



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

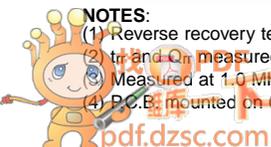
### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

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 $T_L=120^\circ\text{C}$	$I_{(AV)}$	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 0.6A at 1.0A	$V_F$	0.865 0.920				Volts
Maximum DC reverse current at rated DC blocking voltage $T_A=25^\circ\text{C}$ $T_A=100^\circ\text{C}$	$I_R$	5.0 100				$\mu\text{A}$
Maximum reverse recovery time (NOTE 1)	$t_{rr}$	15.0				ns
Maximum reverse recovery time (NOTE 2) $T_A=25^\circ\text{C}$ $T_A=100^\circ\text{C}$	$t_{rr}$	25.0 35.0				ns
Maximum stored charge (NOTE 2) $T_A=25^\circ\text{C}$ $T_A=100^\circ\text{C}$	$Q_{rr}$	10.0 25.0				nC
Typical junction capacitance (NOTE 3)	$C_J$	7.0				pF
Maximum thermal resistance (NOTE 4)	$R_{\theta JA}$ $R_{\theta JL}$	85.0 35.0				$^\circ\text{C/W}$
Operating and storage temperature range	$T_J, T_{STG}$	-55 to +150				$^\circ\text{C}$

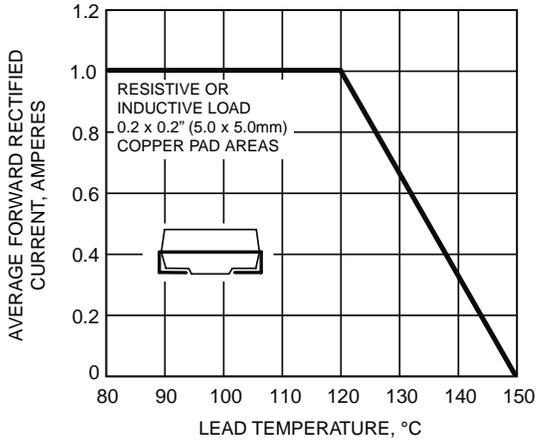
**NOTES:**

- (1) Reverse recovery test conditions:  $I_F=0.5\text{A}$ ,  $I_R=1.0\text{A}$ ,  $I_{rr}=0.25\text{A}$
- (2)  $t_{rr}$  and  $Q_{rr}$  measured at:  $I_F=0.6\text{A}$ ,  $V_R=30\text{V}$ ,  $di/dt=50\text{A}/\mu\text{s}$ ,  $I_{rr}=10\%$   $I_{RM}$  for measurement of  $t_{rr}$
- (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

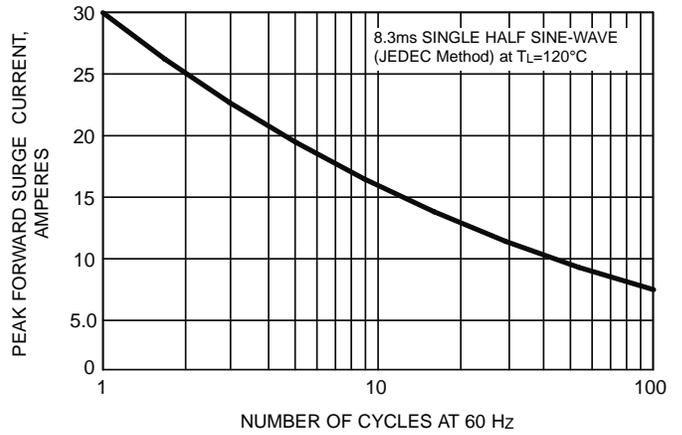


# RATINGS AND CHARACTERISTIC CURVES ES1A THRU ES1D

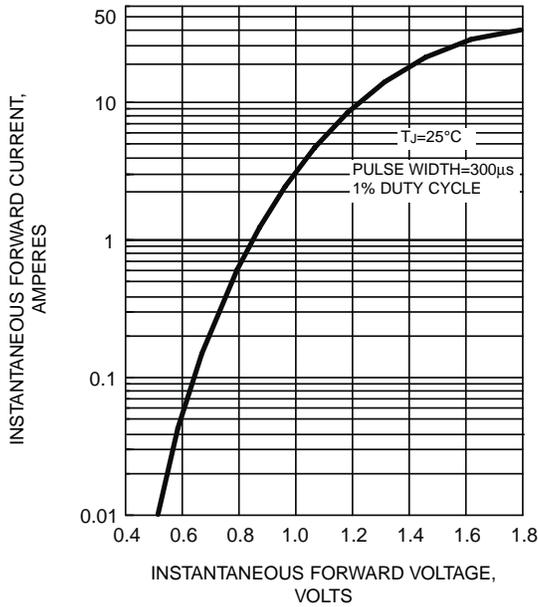
**FIG. 1 - MAXIMUM FORWARD CURRENT DERATING CURVE**



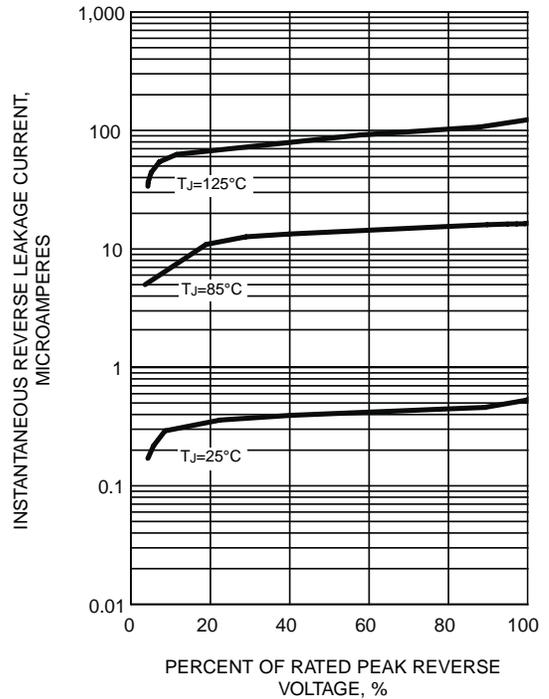
**FIG. 2 - MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT**



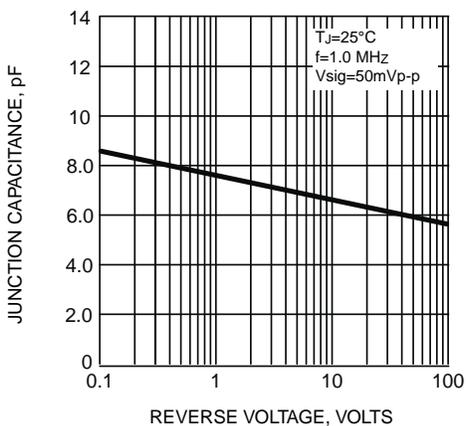
**FIG. 3 - TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS**



**FIG. 4 - TYPICAL REVERSE LEAKAGE CHARACTERISTICS**



**FIG. 5 - TYPICAL JUNCTION CAPACITANCE**



**FIG. 5 - TYPICAL THERMAL IMPEDANCE**

