ES2AD THRU ES2JD

Surface Mount Superfast Recovery Rectifier
Reverse Voltage – 50 to 600 V
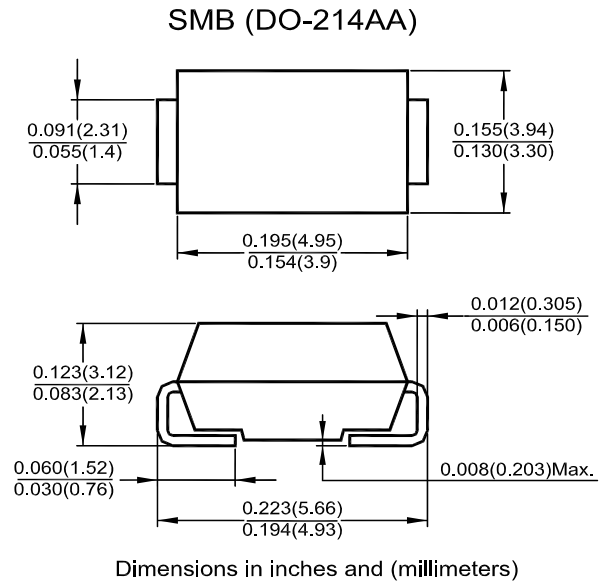Forward Current – 2 A

Features

• Plastic package has Underwriters Laboratories
  Flammability Classification 94V-0
• High forward surge current capability
• For surface mounted applications
• Low reverse leakage
• Built-in strain relief, ideal for automated placement
• Super fast switching for high efficiency

Mechanical Data

• **Case:** JEDEC SMB (DO-214AA) molded plastic body
• **Terminals:** Solder plated, solderable per
  MIL-STD-750, Method 2026
• **Polarity:** Color band denotes cathode end
• **Mounted Position:** Any

SMB (DO-214AA)

$\frac{0.091(2.31)}{0.055(1.4)}$ $\frac{0.155(3.94)}{0.130(3.30)}$

$\frac{0.195(4.95)}{0.154(3.9)}$

$\frac{0.012(0.305)}{0.006(0.150)}$

$\frac{0.123(3.12)}{0.083(2.13)}$

$\frac{0.060(1.52)}{0.030(0.76)}$ 0.008(0.203)Max.

$\frac{0.223(5.66)}{0.194(4.93)}$

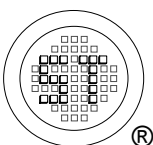Dimensions in inches and (millimeters)

Absolute Maximum Ratings and Characteristics

Ratings at 25°C ambient temperature unless otherwise specified.
Single phase half-wave 60 Hz, resistive or inductive load, for capacitive load current derate by 20%.

Parameter	Symbols	ES2AD	ES2BD	ES2CD	ES2DD	ES2ED	ES2GD	ES2JD	Units
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	150	200	300	400	600	V
Maximum RMS Voltage	V_{RMS}	35	70	105	140	210	280	420	V
Maximum DC Blocking Voltage	V_{DC}	50	100	150	200	300	400	600	V
Maximum Average Forward Rectified Current at T_L= 55°C	$I_{F(AV)}$	2							A
Peak Forward Surge Current 8.3 ms Single Half Sine Wave Superimposed on Rated Load (JEDEC Method)	I_{FSM}	50							A
Maximum Forward Voltage at 2 A	V_F	1.1				1.7			V
Maximum Reverse Current at T_a = 25 °C at Rated DC Blocking Voltage at T_a = 100 °C	I_R	5 200							μA
Typical Junction Capacitance at V_R = 4 V, f = 1 MHz	C_j	62							pF
Typical Reverse Recovery Time at I_F = 0.5 A, I_R = 1 A, I_{rr} = 0.25 A	t_{rr}	35							ns
Typical Thermal Resistance [1]	$R_{\theta JL}$	40							°C/W
Operating Junction and Storage Temperature Range	T_j, T_{stg}	- 55 to + 150							°C

[1] P.C.B. mounted with 0.2 X 0.2" (5.0 X 5.0 mm) copper pad areas.

ES2AD THRU ES2JD

FIG. 1- FORWARD CURRENT DERATING CURVE

AVERAGE FORWARD RECTIFIED CURRENT, AMPERES

Single Phase
Half Wave 60Hz
Resistive or
inductive Load

AMBIENT TEMPERATURE, °C

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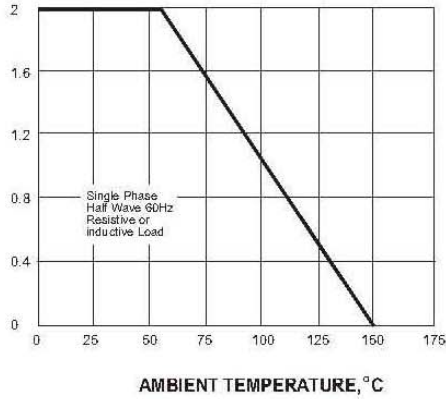
PEAK FORWARD SURGE CURRENT, AMPERES

8.3ms SINGLE HALF SINE-WAVE
(JEDEC Method)

NUMBER OF CYCLES AT 60 Hz

FIG. 3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS
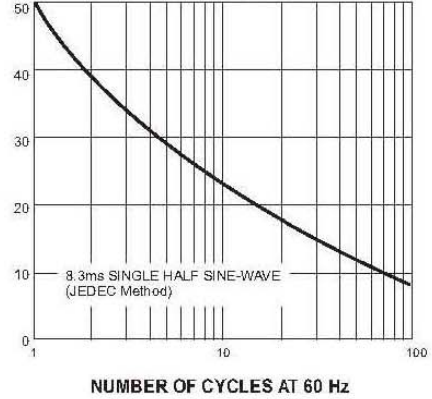
INSTANTANEOUS FORWARD CURRENT, AMPERES

T_J=25℃
PULSE WIDTH=300 μs
1%DUTY CYCLE

ES2AD-ES2DD
ES2ED-ES2GD
ES2JD
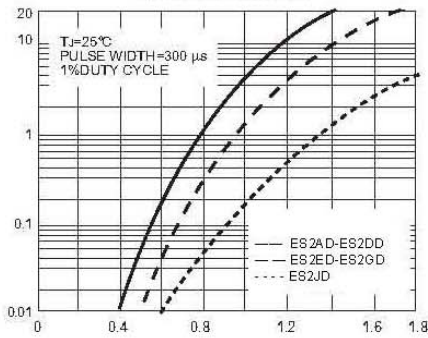
INSTANTANEOUS FORWARD VOLTAGE, VOLTS

FIG. 4-TYPICAL REVERSE CHARACTERISTICS

INSTANTANEOUS REVERSE CURRENT, MICROAMPERES

T_J=100℃

T_J=25℃
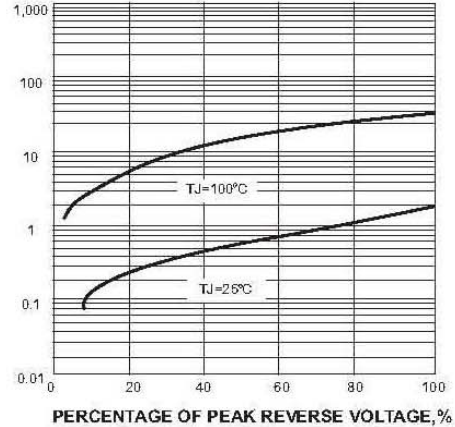
PERCENTAGE OF PEAK REVERSE VOLTAGE, %

FIG. 5-TYPICAL JUNCTION CAPACITANCE

JUNCTION CAPACITANCE, pF

T_J=25℃
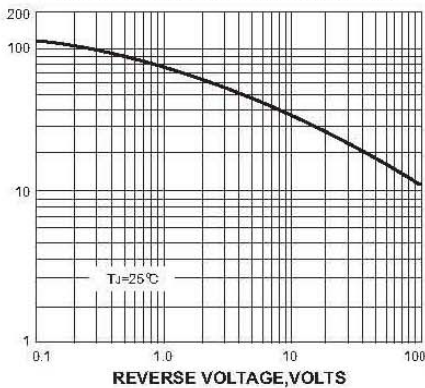
REVERSE VOLTAGE, VOLTS

FIG. 6-TYPICAL TRANSIENT THERMAL IMPEDANCE

TRANSIENT THERMAL IMPEDANCE, °C/W

t, PULSE DURATION, sec.