Tonghua Electronics

Super Fast Surface Mount Rectifiers
Reverse Voltage 50 to 1000 Volts   Forward Current 3.0 Amperes

Features

◆ Glass passivated chip
◆ Super fast switching for high efficiency
◆ For surface mounted applications
◆ Low forward voltage drop and high current capability
◆ Low reverse leakage current
◆ Plastic material has UL flammability classification 94V-0

DO-214AA (SMB)

.082(2.08)
.076(1.93)

.147(3.73)
.137(3.48)

.187(4.75)
.167(4.25)

.012(.31)
.006(.15)

103(2.61)
078(1.99)

.012(.31)
.006(.15)

.056(1.41)
.035(0.90)

.008(.20)
.004(.10)

.215(5.46)
.207(5.26)

Dimensions in inches and (millimeters)

Mechanical Data

◆ Case : Molded plastic
◆ Polarity : Color band denote cathode
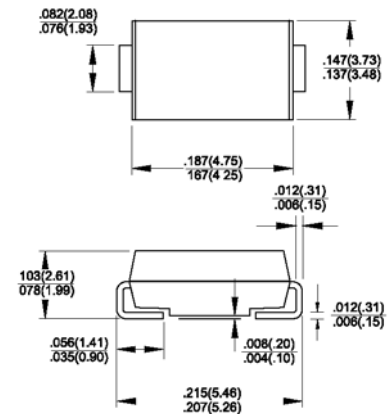◆ Weight : 0.003 ounce, 0.093 gram

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, derate current by 20%

Parameter	Symbols	ES3A	ES3B	ES3C	ES3D	ES3F	ES3G	ES3J	ES3K	ES3M	Units
Maximum repetitive peak reverse voltage	V_{RRM}	50	100	150	200	300	400	600	800	1000	Volts
Maximum RMS voltage	V_{RMS}	35	70	105	140	210	280	420	560	700	Volts
Maximum DC blocking voltage	V_{DC}	50	100	150	200	300	400	600	800	1000	Volts
Maximum average forward rectified current @T_L=100°C	$I_{(AV)}$	3.0									Amps
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	100.0									Amps
Maximum forward voltage @ 3.0A DC	V_F	0.92				1.25			1.7		Volts
Maximum DC reverse current @ T_J=25°C at rated DC blocking voltage @ T_J=125°C	I_R	10.0 500									uA uA
Maximum reverse recovery time (Note 1)	t_{rr}	25									nS
Typical junction capacitance (Note 2)	C_J	45									pF
Typical thermal resistance (Note 3) (Note 4)	$R_{\theta JL}$ $R_{\theta JA}$	10 50									°C/W
Operating junction temperature range	T_J	-55 to +150									°C
Storage temperature range	T_{STG}	-55 to +150									°C

Notes: 1. Reverse Recovery Test Conditions: I_F=0.5A, I_R=1.0A, I_{RR}=0.25A

2. Measured at 1.0MHz and applied reverse voltage of 4.0V DC.

3. Thermal Resistance junction to Lead.

4. Thermal Resistance junction to Ambient.

RATINGS AND CHARACTERISTIC CURVES
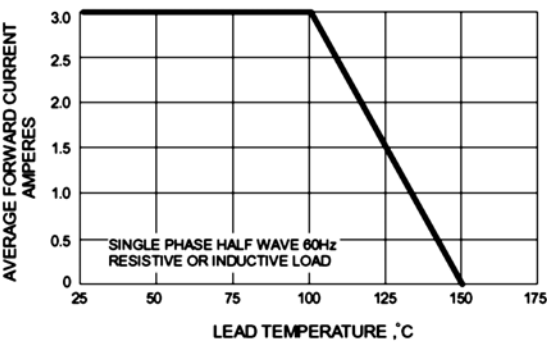
FIG.1 - FORWARD CURRENT DERATING CURVE

AVERAGE FORWARD CURRENT AMPERES vs LEAD TEMPERATURE, °C

SINGLE PHASE HALF WAVE 60Hz
RESISTIVE OR INDUCTIVE LOAD

FIG.2 - MAXIMUM NON-REPETITIVE SURGE CURRENT

PEAK FORWARD SURGE CURRENT, AMPERES vs NUMBER OF CYCLES AT 60Hz

Pulse Width 8.3ms
Single Half-Sine-Wave
(JEDEC METHOD)
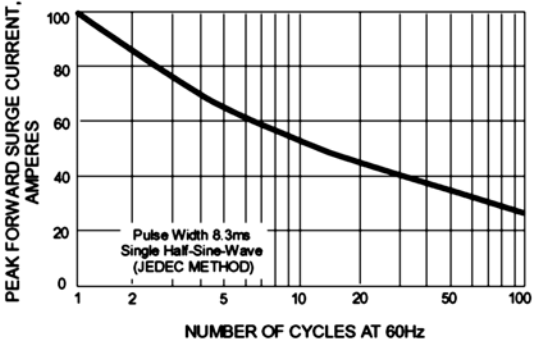
FIG.3 - TYPICAL FORWARD CHARACTERISTICS

INSTANTANEOUS FORWARD CURRENT, (A) vs INSTANTANEOUS FORWARD VOLTAGE, (VOLTS)
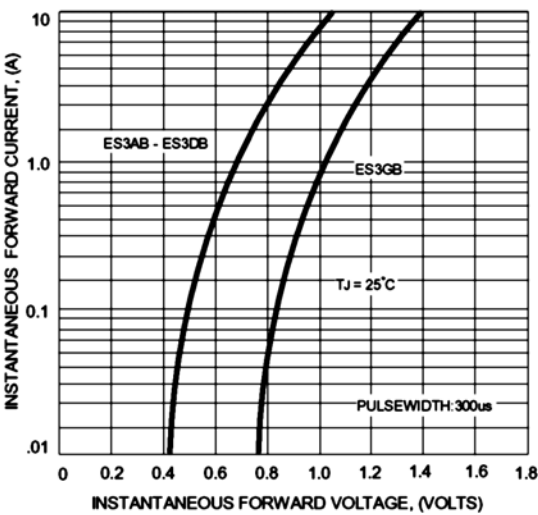
ES3AB - ES3DB

ES3GB

$T_J = 25°C$

PULSEWIDTH:300us

FIG.4 - TYPICAL REVERSE CHARACTERISTICS

INSTANTANEOUS REVERSE CURRENT, (uA) vs PERCENT OF RATED PEAK REVERSE VOLTAGE, (%)

$T_J = 125°C$

$T_J = 25°C$