TAIWAN SEMICONDUCTOR

Pb **RoHS** COMPLIANCE

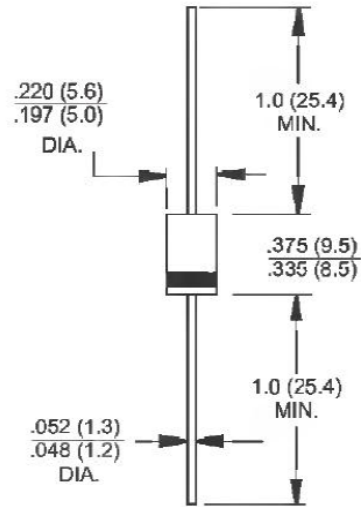## Features

✧ High efficiency, Low VF
✧ High current capability
✧ High reliability
✧ High surge current capability
✧ Low power loss
✧ Green compound with suffix "G" on packing code & prefix "G" on datecode

Mechanical Data

✧ Cases: Molded plastic
✧ Epoxy: UL 94V-0 rate flame retardant
✧ Lead: Pure tin plated, lead free, solderable per MIL-STD-202, Method 208 guaranteed
✧ Polarity: Color band denotes cathode
✧ High temperature soldering guaranteed: 260℃/10s /.375", (9.5mm) lead lengths at 5 lbs, (2.3kg) tension
✧ Weight: 1.2 grams

.220 (5.6) / .197 (5.0) DIA.

1.0 (25.4) MIN.

.375 (9.5) / .335 (8.5)

1.0 (25.4) MIN.

.052 (1.3) / .048 (1.2) DIA.

Dimensions in inches and (millimeters)

Marking Diagram

BY25X SGYWW

BY25X	= Specific Device Code
G	= Green Compound
Y	= Year
WW	= Work Week

Maximum Ratings and Electrical Characteristics

Rating at 25 ℃ ambient temperature unless otherwise specified.
Single phase, half wave, 60 Hz, resistive or inductive load.
For capacitive load, derate current by 20%

Type Number	Symbol	BY251	BY252	BY253	BY254	Units
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	200	400	600	800	V
Maximum RMS Voltage	V_{RMS}	140	280	420	560	V
Maximum DC Blocking Voltage	V_{DC}	200	400	600	800	V
Maximum Average Forward Rectified Current .375"(9.5mm) Lead Length @T_A=75℃	$I_{F(AV)}$	3				A
Peak Forward Surge Current, 8.3 ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method)	I_{FSM}	150				A
Maximum Instantaneous Forward Voltage (Note 1) @ 3 A	V_F	1.0				V
Maximum DC Reverse Current at @ T_A=25 ℃ Rated DC Blocking Voltage @ T_A=125℃	I_R	5 / 100				uA / uA
Maximum Full Load Reverse Current, Full Cycle Average .375"(9.5mm) Lead Length @T_L=75℃	$I_{R(AV)}$	30				uA
Typical Junction Capacitance (Note 2)	Cj	40				pF
Typical Thermal Resistance (Note 3)	$R_{\theta JA}$	40				℃/W
Operating Temperature Range	T_J	- 65 to + 150				℃
Storage Temperature Range	T_{STG}	- 65 to + 150				℃

Note1: Pulse Test with PW=300 usec, 1% Duty Cycle

Note2: Measured at 1 MHz and Applied Reverse Voltage of 4.0V D.C.

Note3: Mount on Cu-Pad Size 16mm × 16mm on P.C.B.

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RATINGS AND CHARACTERISTIC CURVES (BY251 THRU BY254)
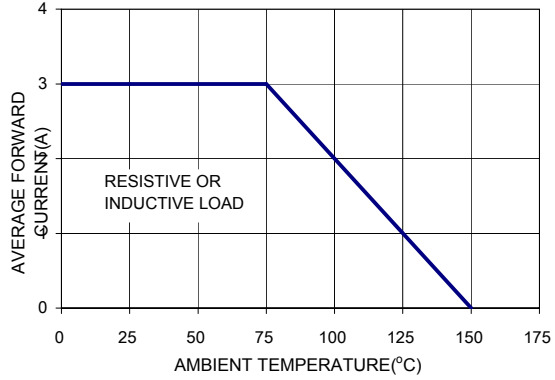
FIG.1- MAXMUM FORWARD CURRENT
DERATING CURVE

AVERAGE FORWARD CURRENT(A)

RESISTIVE OR
INDUCTIVE LOAD

AMBIENT TEMPERATURE(°C)

FIG. 2- TYPICAL REVERSE
CHARACTERISTICS

INSTANTANEOUS REVERSE CURRENT (uA)

TA=125℃

TA=25℃

PERCENT OF RATED PEAK REVERSE VOLTAGE
(%)
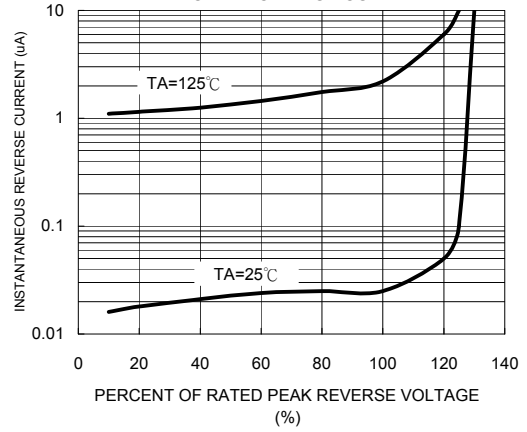
FIG. 3- MAXIMUM NON-REPETITIVE FORWARD
SURGE CURRENT PER LEG

PEAK FORWARD SURGE CURRENT(A)

8.3ms Single Half Sine Wave
(JEDEC Method)

NUMBER OF CYCLES AT 60 Hz

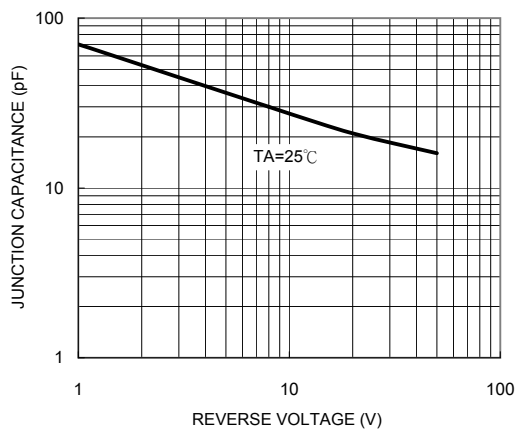FIG. 4- TYPICAL JUNCTION CAPACITANCE

JUNCTION CAPACITANCE (pF)

TA=25℃

REVERSE VOLTAGE (V)
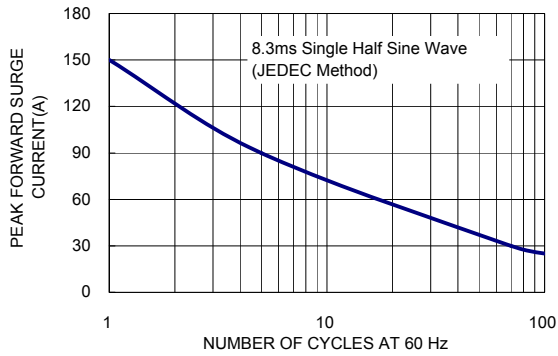
FIG. 5- TYPICAL FORWARD
CHARACTERISTICS

INSTANTANEOUS FORWARD CURRENT (A)

TA=25℃
Pulse Width=300us
1% Duty Cycle

FORWARD VOLTAGE (V)

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