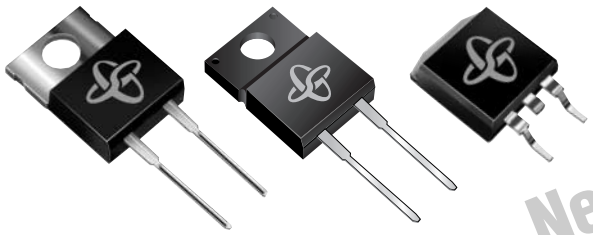
GENERAL SEMICONDUCTOR®

UG5JT, UGF5JT, UGB5JT Series

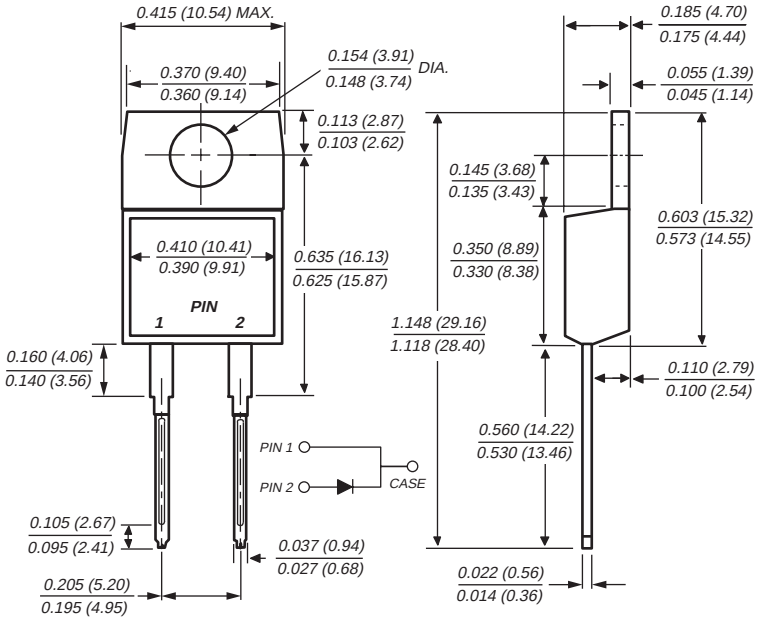
Ultrafast Rectifiers

Reverse Voltage 500 to 600V
Forward Current 5.0A
Reverse Recovery Time 25ns

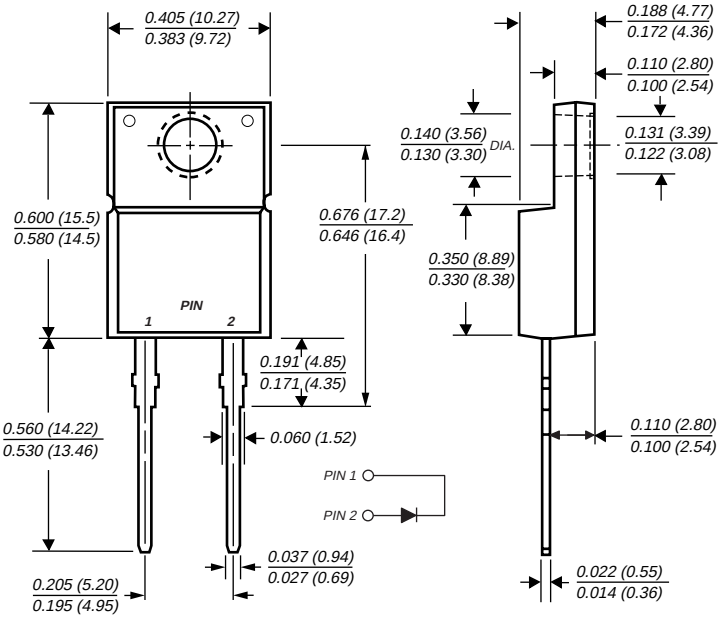


New Product

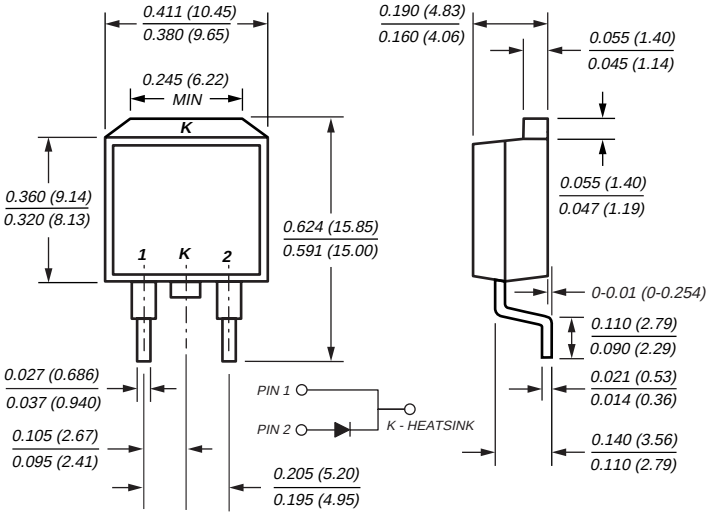
TO-220AC (UG5 Series)



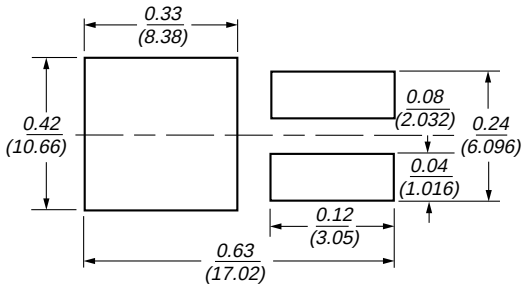
ITO-220AC (UGF5 Series)



TO-263AB (UGB5 Series)



Mounting Pad Layout TO-263AB



Dimensions in inches and (millimeters)

Mechanical Data

Case: JEDEC TO-220AC, ITO-220AC & TO-263AB molded plastic body

Terminals: Plated leads, solderable per MIL-STD-750, Method 2026
High temperature soldering in accordance with CECC 802 / Reflow guaranteed

Polarity: As marked

Mounting Position: Any

Mounting Torque: 10 in-lbs maximum

Weight: 0.08oz., 2.24g

Features

- Plastic package has Underwriters Laboratories Flammability Classification 94V-0
- Ideally suited for freewheeling diode and power factor correction applications
- Soft recovery characteristics
- Excellent high temperature switching
- Optimized to reduce switching losses
- Glass passivated chip junction

1/23/01

GENERAL SEMICONDUCTOR®

UG5JT, UGF5JT, UGB5JT Series

Ultrafast Rectifiers

Maximum Ratings (T_C = 25°C unless otherwise noted)

Parameter	Symbol	UG5HT	UG5JT	Unit
Maximum repetitive peak reverse voltage	V_{RRM}	500	600	V
Maximum working reverse voltage	V_{RWM}	400	480	V
Maximum RMS voltage	V_{RMS}	350	420	V
Maximum DC blocking voltage	V_{DC}	500	600	V
Maximum average forward rectified current	$I_{F(AV)}$	5.0		A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) at T_C = 100°C	I_{FSM}	65		A
Operating junction and storage temperature range	T_J, T_{STG}	–55 to +150		°C
RMS Isolation voltage (UGF types only) from terminals to heatsink with t = 1.0 second, RH ≤ 30%	V_{ISOL}	4500(1) 3500(2) 1500(3)		V

Electrical Characteristics (T_C = 25°C unless otherwise noted)

Parameter		Symbol	UG5HT	UG5JT	Unit
Maximum instantaneous forward voltage(4)	I_F = 5A, T_J = 25°C I_F = 5A, T_J = 125°C	V_F	1.75 1.50		V
Maximum DC reverse current at V_{RWM}	T_J = 25°C T_J = 100°C T_J = 125°C	I_R	30 800 4.0		µA µA mA
Maximum reverse recovery time at I_F = 0.5A, I_R = 1.0A, I_{rr} = 0.25A		t_{rr}	25		ns
Maximum reverse recovery time at I_F = 1.0A, di/dt = 50A/µs, V_R = 30V, I_{rr} = 0.1 I_{RM}		t_{rr}	50		ns
Typical softness factor (t_b/t_a) I_F = 5.0A, di/dt = 240A/µs, V_R = 400V, I_{rr} = 0.1 I_{RM}		S	0.9		—
Maximum reverse recovery current at I_F = 5.0A, di/dt = 40A/µs, V_R = 400V, T_C = 125°C		I_{RM}	3.0		A
Maximum reverse recovery current at I_F = 5.0A, di/dt = 240A/µs, V_R = 400V, T_C = 125°C		I_{RM}	9.0		A
Peak forward recovery time at I_F = 5.0A, di/dt = 64A/µs, V_F = 1.1$V_{F\ max}$		t_{fr}	500		ns

Thermal Characteristics (T_C = 25°C unless otherwise noted)

Parameter	Symbol	UG5	UGF5	UGB5	Unit
Typical thermal resistance from junction to case	$R_{\theta JC}$	3.0	5.5	3.0	°C/W

Notes: (1) Clip mounting (on case), where lead does not overlap heatsink with 0.110" offset
(2) Clip mounting (on case), where leads do overlap heatsink
(3) Screw mounting with 4-40 screw, where washer diameter is ≤ 4.9 mm (0.19")
(4) Pulse test: 300µs pulse width, 1% duty cycle

Ordering Information

Product	Case	Package Code	Package Option
UG5HT & UG5JT	TO-220AC	45	Anti-Static tube, 50/tube, 2K/carton
UGF5HT & UGF5JT	ITO-220AC	45	Anti-Static tube, 50/tube, 2K/carton
UGB5HT & UGB5JT	TO-263AB	31 45 81	13" reel, 800/reel, 4.8K/carton Anti-Static tube, 50/tube, 2K/carton Anti-Static 13" reel, 800/reel, 4.8K/carton

Ratings and Characteristic Curves (T_A = 25°C unless otherwise noted)

Fig. 1 – Forward Current Derating Curve

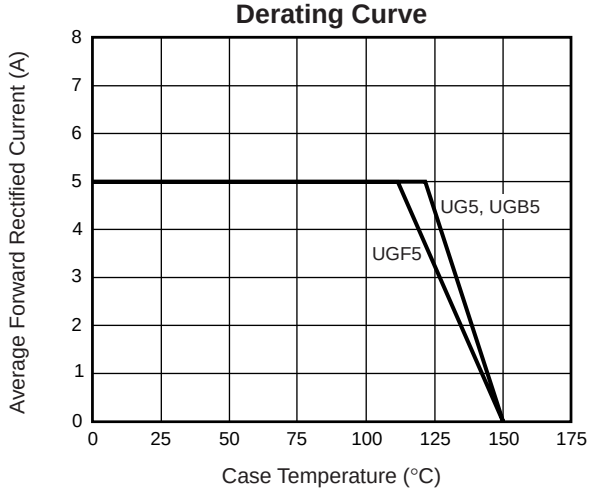


Fig. 2 – Maximum Non-Repetitive Peak Forward Surge Current

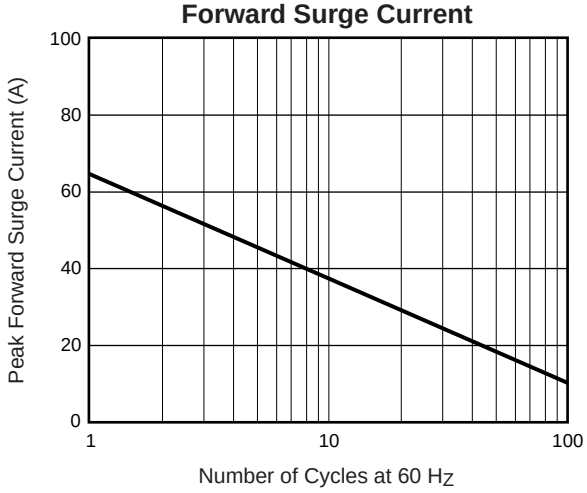


Fig. 3 – Typical Reverse Characteristics

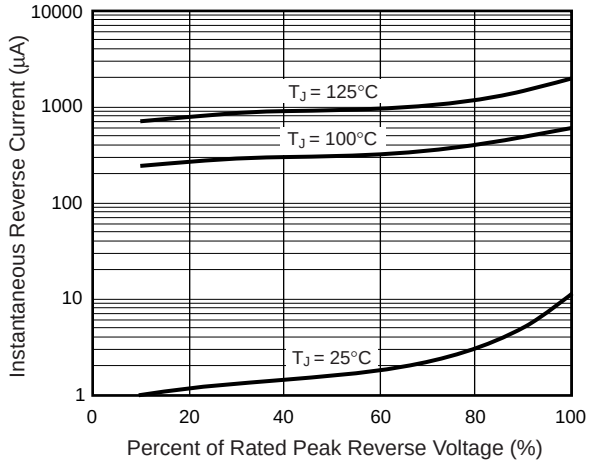


Fig. 4 – Typical Instantaneous Forward Characteristics

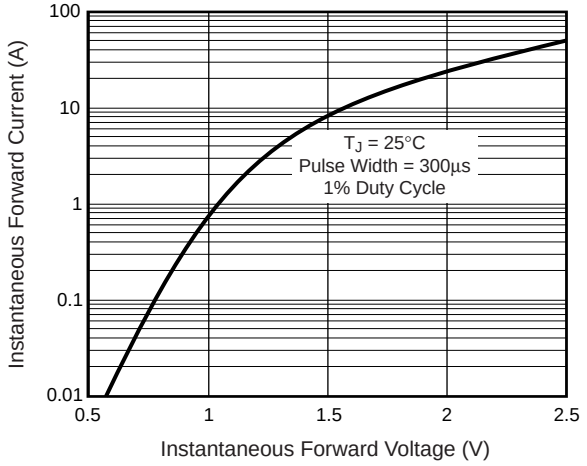


Fig. 5 – Typical Junction Capacitance

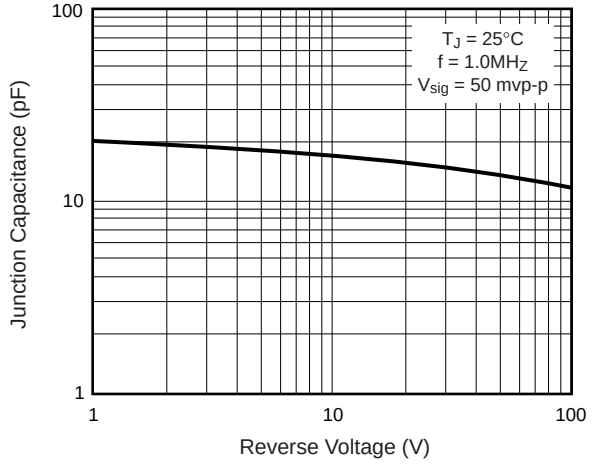


Fig. 6 – Reverse Switching Characteristics