



Electrical Specifications $T_C = 25^\circ\text{C}$, Unless Otherwise Specified

SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
V_F	$I_F = 8\text{ A}$	–	–	3.2	V
	$I_F = 8\text{ A}$, $T_C = 150^\circ\text{C}$	–	–	2.6	V
I_R	$V_R = 1200\text{ V}$	–	–	100	μA
	$V_R = 1200\text{ V}$, $T_C = 150^\circ\text{C}$	–	–	500	μA
t_{rr}	$I_F = 1\text{ A}$, $dI_F/dt = 200\text{ A}/\mu\text{s}$	–	–	55	ns
	$I_F = 8\text{ A}$, $dI_F/dt = 200\text{ A}/\mu\text{s}$	–	–	70	ns
t_a	$I_F = 8\text{ A}$, $dI_F/dt = 200\text{ A}/\mu\text{s}$	–	30	–	ns
t_b	$I_F = 8\text{ A}$, $dI_F/dt = 200\text{ A}/\mu\text{s}$	–	20	–	ns
Q_{rr}	$I_F = 8\text{ A}$, $dI_F/dt = 200\text{ A}/\mu\text{s}$	–	165	–	nC
C_J	$V_R = 10\text{ V}$, $I_F = 0\text{ A}$	–	25	–	pF
$R_{\theta JC}$		–		2	$^\circ\text{C}/\text{W}$

DEFINITIONS

V_F = Instantaneous forward voltage ($p_w = 300\text{ }\mu\text{s}$, $D = 2\%$).

I_R = Instantaneous reverse current.

T_{rr} = Reverse recovery time (See Figure 9), summation of $t_a + t_b$.

t_a = Time to reach peak reverse current (See Figure 9).

t_b = Time from peak I_{RM} to projected zero crossing of I_{RM} based on a straight line from peak I_{RM} through 25% of I_{RM} (See Figure 9).

Q_{rr} = Reverse Recovery Charge.

C_J = Junction Capacitance.

$R_{\theta JC}$ = Thermal resistance junction to case.

p_w = Pulse Width.

D = Duty Cycle.

Typical Performance Curves

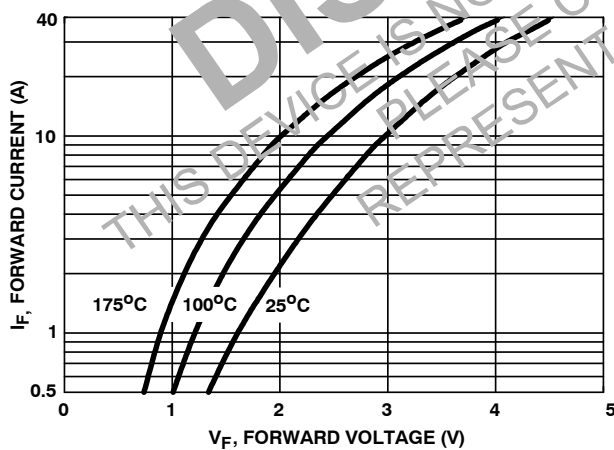


FIGURE 1. FORWARD CURRENT vs FORWARD VOLTAGE

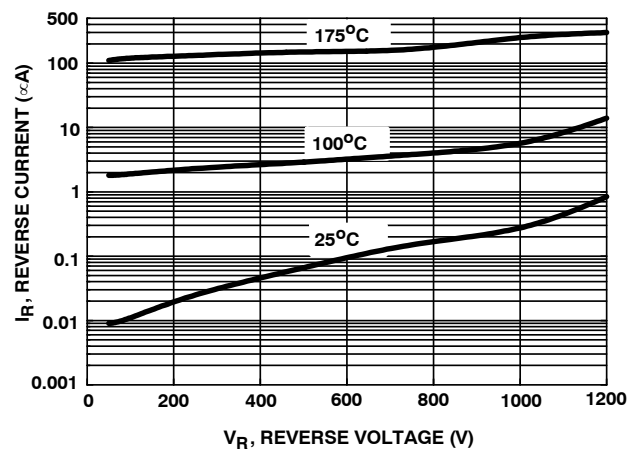


FIGURE 2. REVERSE CURRENT vs REVERSE VOLTAGE

Typical Performance Curves (Continued)

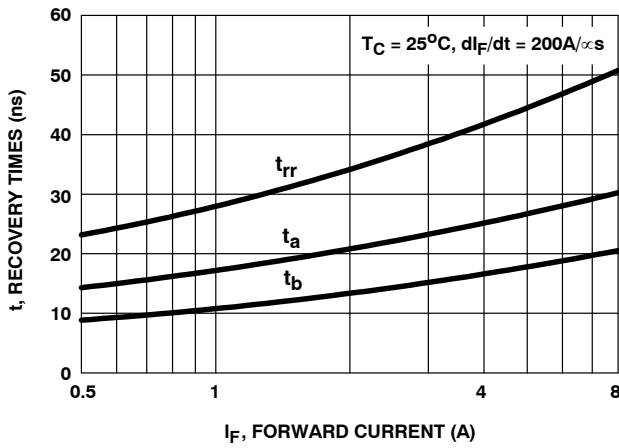


FIGURE 3. t_{rr} , t_a AND t_b CURVES vs FORWARD CURRENT

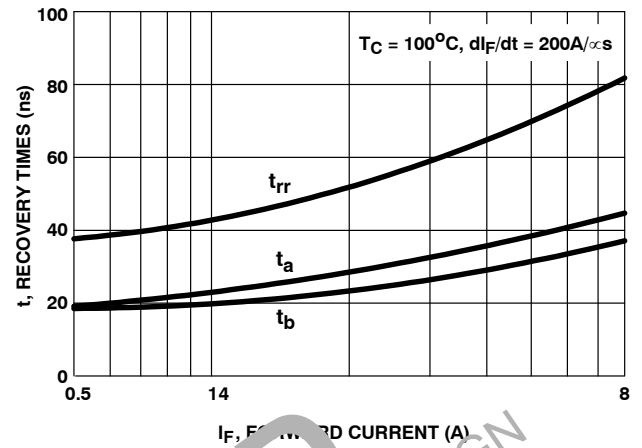


FIGURE 4. t_{rr} , t_a AND t_b CURVES vs FORWARD CURRENT

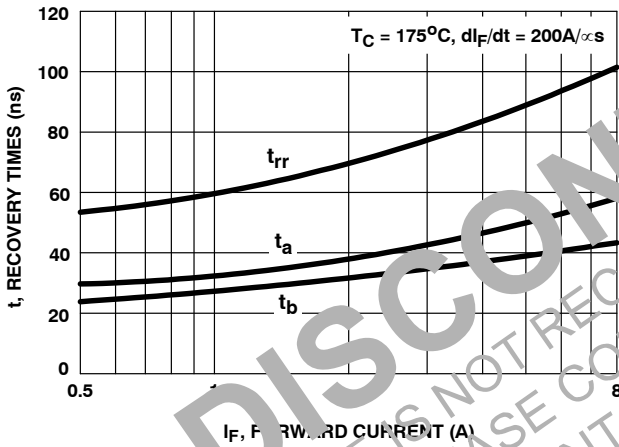


FIGURE 5. t_{rr} , t_a AND t_b CURVES vs FORWARD CURRENT

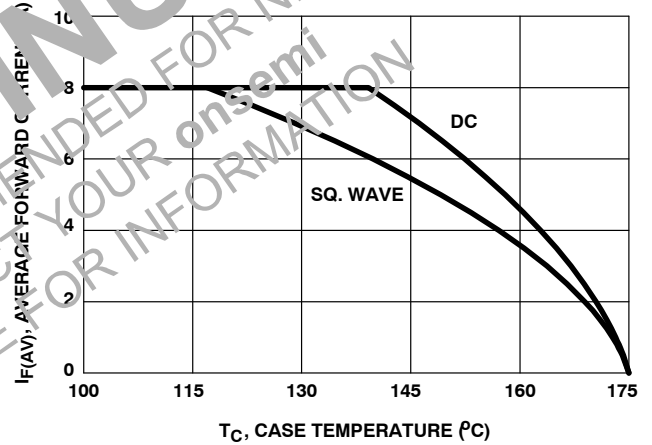


FIGURE 6. CURRENT DERATING CURVE

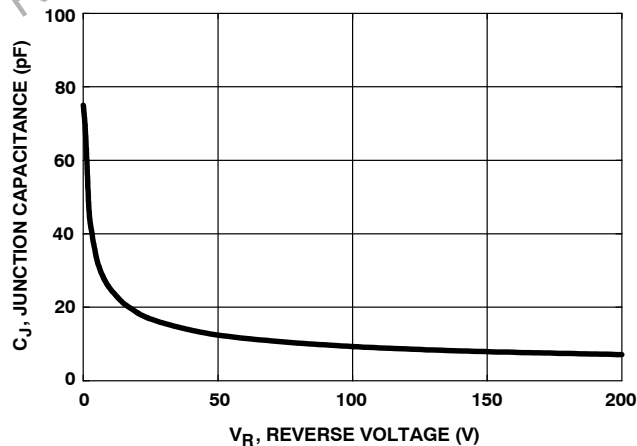
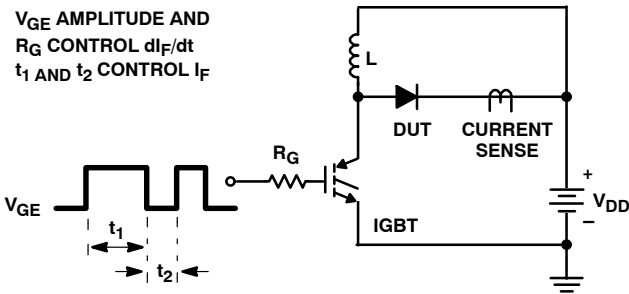
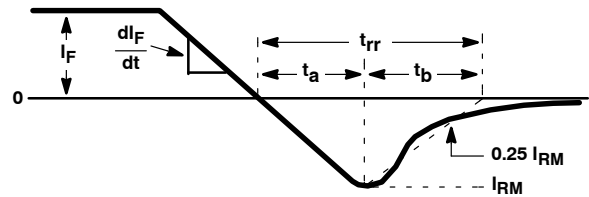


FIGURE 7. JUNCTION CAPACITANCE vs REVERSE VOLTAGE

Test Circuits and Waveforms

FIGURE 8. t_{rr} TEST CIRCUITFIGURE 9. t_{rr} WAVEFORMS AND DEFINITIONS

$I_{MAX} = 1A$
 $L = 40mH$
 $R < 0.1\Omega$
 $E_{AVL} = 1/2LI^2 [V_{R(AVL)}/(V_{R(AVL)} - V_{DD})]$
 $Q_1 = IGBT (BV_{CES} > DUT V_{R(AVL)})$

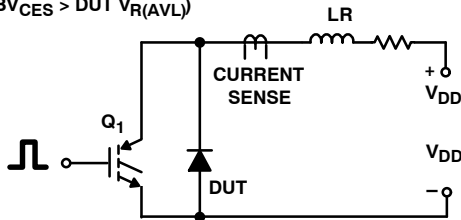


FIGURE 10. AVALANCHE ENERGY TEST CIRCUIT

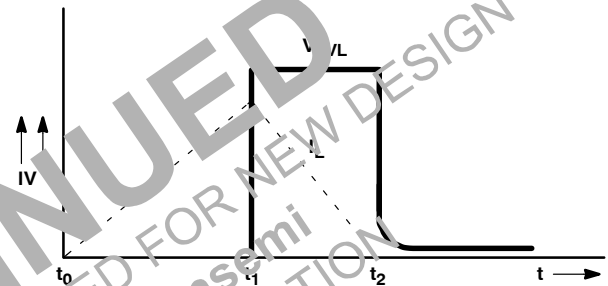


FIGURE 11. AVALANCHE CURRENT AND VOLTAGE WAVEFORMS

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