

Absolute Maximum Ratings of Freewheeling Diode

V_{RRM}	Repetitive Peak Reverse Voltage	1200	V
I_F	Diode Continuous Forward Current, $T_C = 25^\circ\text{C}$	100	A
	Diode Continuous Forward Current, $T_C = 80^\circ\text{C}$	50	
I_{FM}	Pulse Diode Current	100	A

Electrical and Switching Characteristics of Freewheeling Diode

Parameter		Typ.	Max.	Unit	Test Conditions	
V_F	Forward Voltage	2.00	2.70	V	$T_J = 25^\circ\text{C}$	$I_F = 50\text{A}$, $V_{GE} = 0\text{V}$
		2.20			$T_J = 125^\circ\text{C}$	
I_{rr}	Peak Reverse Recovery Current	30		A	$T_J = 25^\circ\text{C}$	$I_F = 50\text{A}$, $di/dt = 350\text{A}/\mu\text{s}$, $V_{rr} = 600\text{V}$, $V_{GE} = -15\text{V}$
		40			$T_J = 125^\circ\text{C}$	
Q_{rr}	Reverse Recovery Charge	4.4		μC	$T_J = 25^\circ\text{C}$	
		7.3			$T_J = 125^\circ\text{C}$	
E_{rec}	Reverse Recovery Energy	1.5		mJ	$T_J = 25^\circ\text{C}$	
		3.0			$T_J = 125^\circ\text{C}$	

NTC-Thermistor Characteristic Values

Parameter		Typ.	Max.	Unit
R_{25}	$T_C = 25^\circ\text{C}$	5		k Ω
$\Delta R/R$	$T_C = 100^\circ\text{C}$, $R_{100} = 481\Omega$		± 5	%
P_{25}	$T_C = 25^\circ\text{C}$	50		mW
$B_{25/50}$	$R_2 = R_{25} \exp[B_{25/50}(1/T_2 - 1/(298.15\text{K}))]$	3380		K
$B_{25/80}$	$R_2 = R_{25} \exp[B_{25/80}(1/T_2 - 1/(298.15\text{K}))]$	3440		K

Module Characteristics

Parameter		Min.	Typ.	Max.	Unit
V_{iso}	Isolation Voltage (All Terminals Shorted), $f = 50\text{Hz}$, 1minute			2500	V
$R_{\theta JC}$	Junction-to-Case (IGBT)		0.44		$^\circ\text{C}/\text{W}$
$R_{\theta JC}$	Junction-to-Case (Diode)		0.87		$^\circ\text{C}/\text{W}$
$R_{\theta CS}$	Case-To-Sink (Conductive Grease Applied)		0.1		$^\circ\text{C}/\text{W}$
M	Mounting Screw: M6	4.0		6.0	N·m
G	Weight		200		g

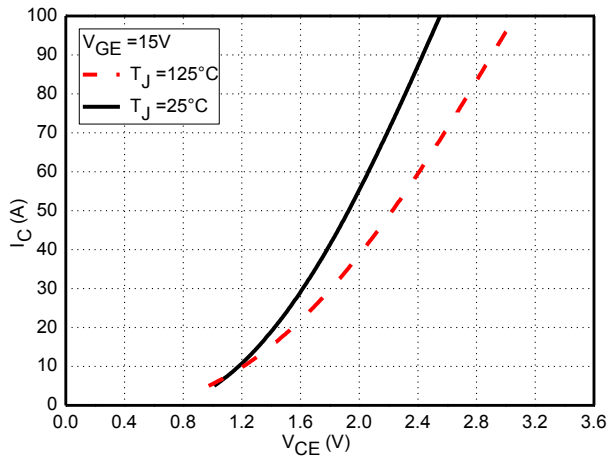


Fig.1 Typical IGBT Saturation Characteristics

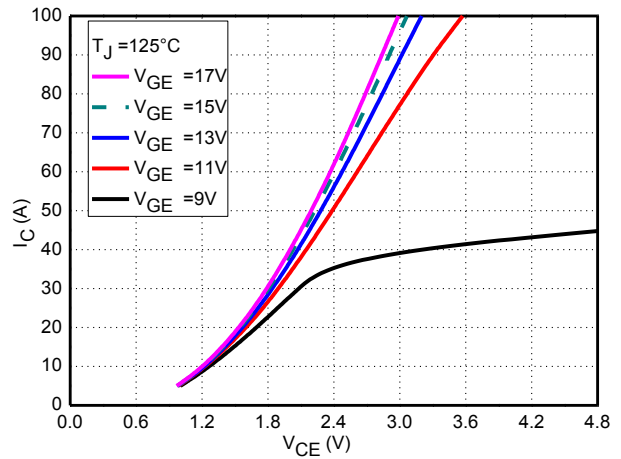


Fig.2 Typical IGBT Output Characteristics

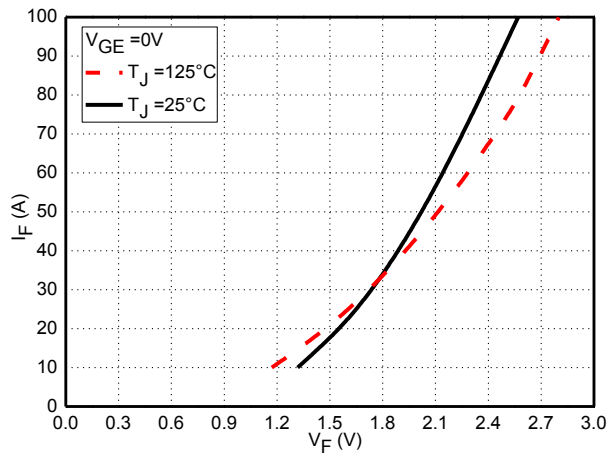


Fig.3 Typical Freewheeling Diode Characteristics

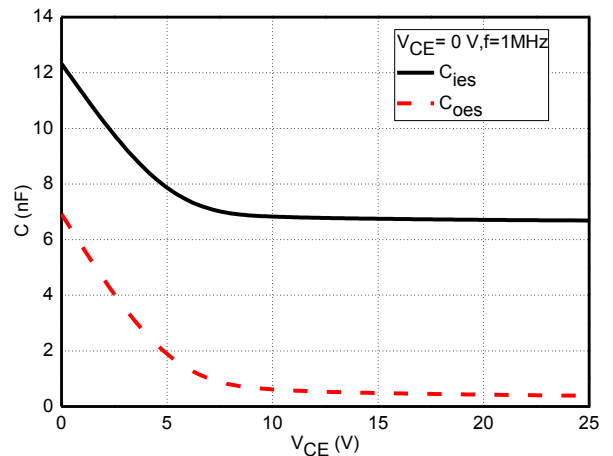


Fig. 4 Typical Capacitance Characteristics

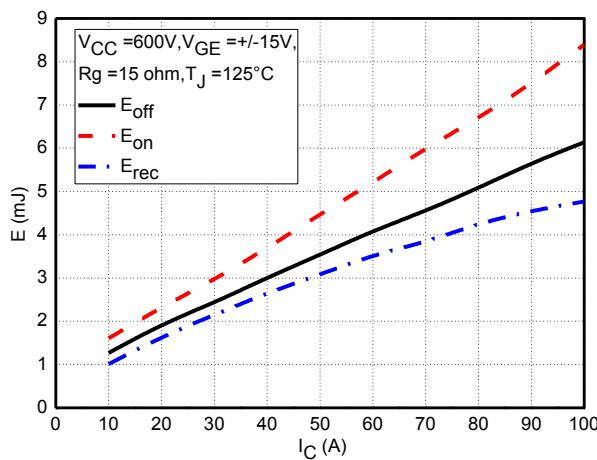


Fig.5 Typical Switching Loss vs. Collector Current

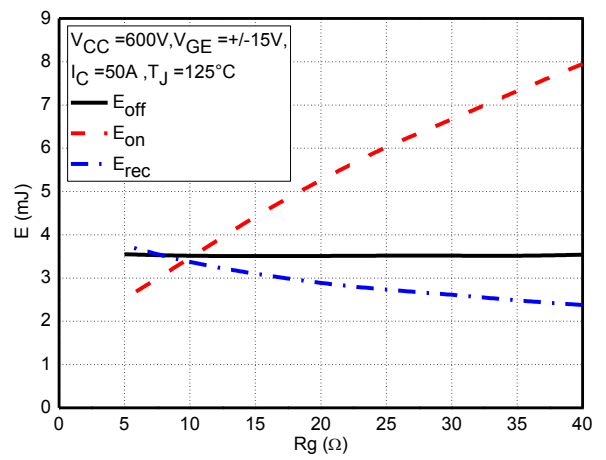


Fig.6 Typical Switching Loss vs. Gate Resistance