All ratings @ T_j = 25°C unless otherwise specified

Electrical Characteristics

Symbol	*Characteristic*	*Test Conditions*		*Min*	*Typ*	*Max*	*Unit*
I_{CES}	Zero Gate Voltage Collector Current	V_{GE} = 0V, V_{CE} = 1200V				500	µA
$V_{CE(sat)}$	Collector Emitter saturation Voltage	V_{GE} = 15V, I_C = 200A	T_j = 25°C	1.4	1.7	2.1	V
			T_j = 125°C		2.0		
$V_{GE(th)}$	Gate Threshold Voltage	V_{GE} = V_{CE}, I_C = 8mA		5.0	5.8	6.5	V
I_{GES}	Gate – Emitter Leakage Current	V_{GE} = 20V, V_{CE} = 0V				400	nA

Dynamic Characteristics

Symbol	*Characteristic*	*Test Conditions*		*Min*	*Typ*	*Max*	*Unit*
C_{ies}	Input Capacitance	V_{GE} = 0V, V_{CE} = 25V, f = 1MHz			14		nF
C_{rss}	Reverse Transfer Capacitance				0.6		
Q_G	Gate charge	V_{GE}=±15V, I_C=200A, V_{CE}=600V			1.9		µC
$T_{d(on)}$	Turn-on Delay Time	Inductive Switching (25°C), V_{GE} = ±15V, V_{Bus} = 600V, I_C = 200A, R_G = 3.6Ω			250		ns
T_r	Rise Time				90		
$T_{d(off)}$	Turn-off Delay Time				550		
T_f	Fall Time				130		
$T_{d(on)}$	Turn-on Delay Time	Inductive Switching (125°C), V_{GE} = ±15V, V_{Bus} = 600V, I_C = 200A, R_G = 3.6Ω			300		ns
T_r	Rise Time				100		
$T_{d(off)}$	Turn-off Delay Time				650		
T_f	Fall Time				180		
E_{on}	Turn on Energy	V_{GE} = ±15V, V_{Bus} = 600V, I_C = 200A, R_G = 3.6Ω	T_j = 125°C		15		mJ
E_{off}	Turn off Energy		T_j = 125°C		35		
I_{sc}	Short Circuit data	V_{GE} ≤15V ; V_{Bus} = 900V, t_p ≤ 10µs ; T_j = 125°C			800		A

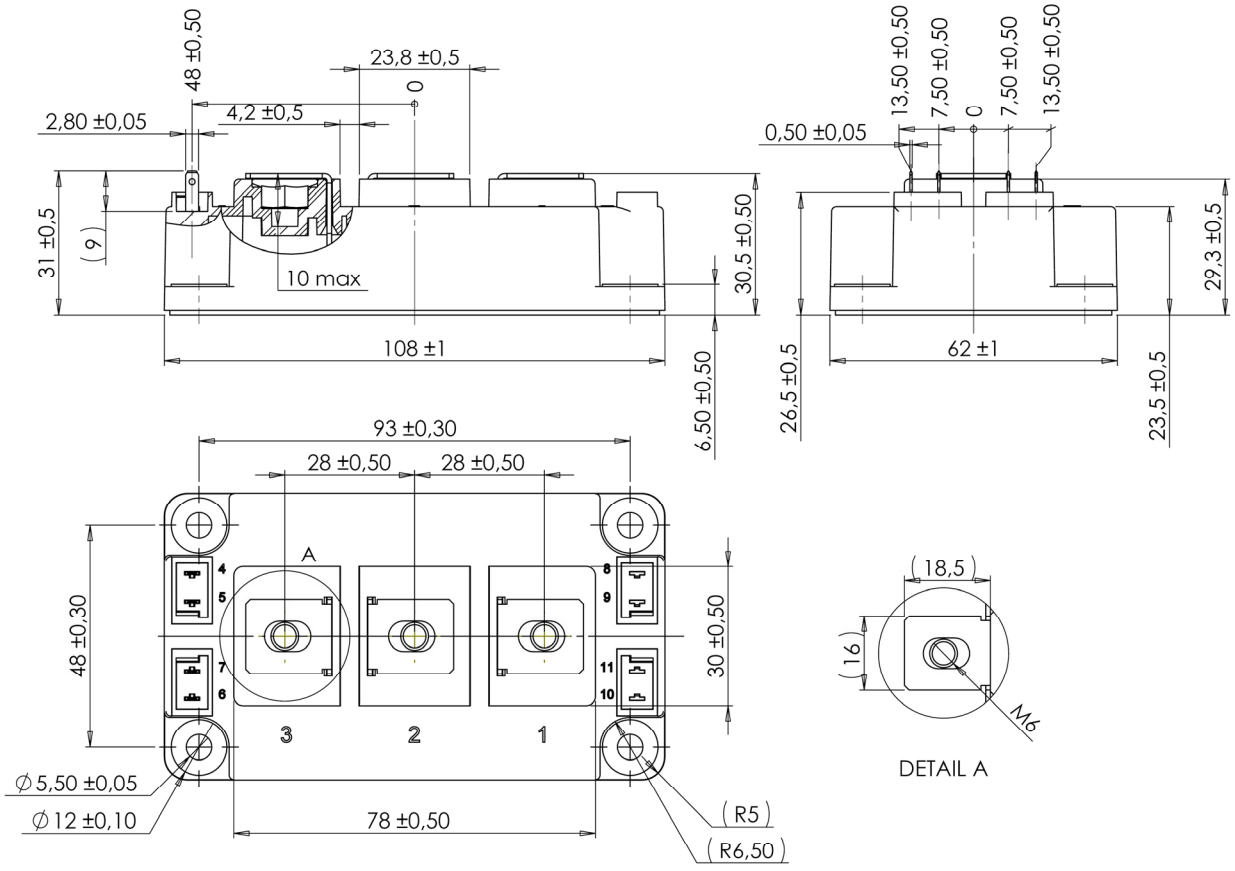
Reverse diode ratings and characteristics

Symbol	*Characteristic*	*Test Conditions*		*Min*	*Typ*	*Max*	*Unit*
V_{RRM}	Maximum Peak Repetitive Reverse Voltage			1200			V
I_{RRM}	Maximum Reverse Leakage Current	V_R=1200V	T_j = 25°C			750	µA
			T_j = 125°C			1000	
I_F	DC Forward Current		Tc = 80°C		200		A
V_F	Diode Forward Voltage	I_F = 200A, V_{GE} = 0V	T_j = 25°C		1.6	2.1	V
			T_j = 125°C		1.6		
t_{rr}	Reverse Recovery Time	I_F = 200A, V_R = 600V, di/dt =3500A/µs	T_j = 25°C		170		ns
			T_j = 125°C		280		
Q_{rr}	Reverse Recovery Charge		T_j = 25°C		22		µC
			T_j = 125°C		40		
E_{rr}	Reverse Recovery Energy		T_j = 25°C		9		mJ
			T_j = 125°C		16		

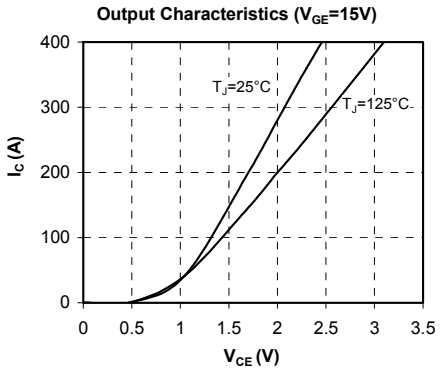
Thermal and package characteristics

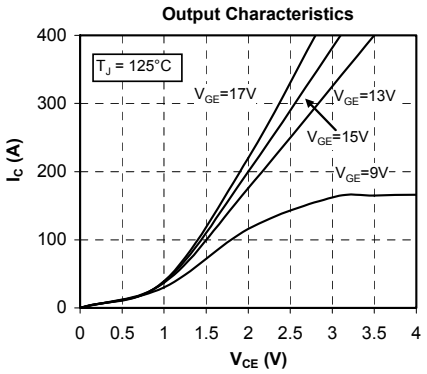
Symbol	*Characteristic*			*Min*	*Typ*	*Max*	*Unit*
R_{thJC}	Junction to Case Thermal Resistance		IGBT			0.12	°C/W
			Diode			0.20	
V_{ISOL}	RMS Isolation Voltage, any terminal to case t =1 min, 50/60Hz			4000			V
T_J	Operating junction temperature range			-40		150	°C
T_{STG}	Storage Temperature Range			-40		125	
T_C	Operating Case Temperature			-40		125	
Torque	Mounting torque	For terminals	M6	3		5	N.m
		To Heatsink	M6	3		5	
Wt	Package Weight					350	g

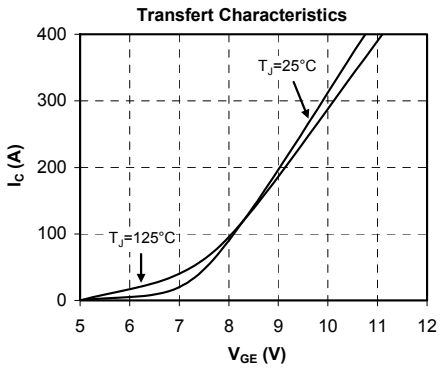
D3 Package outline (dimensions in mm)

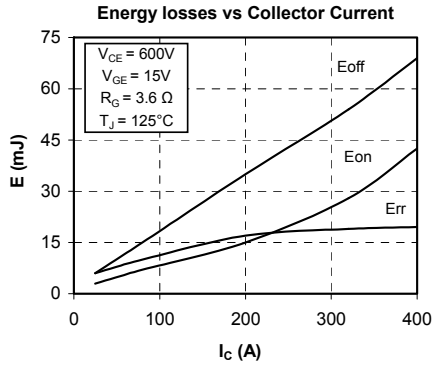


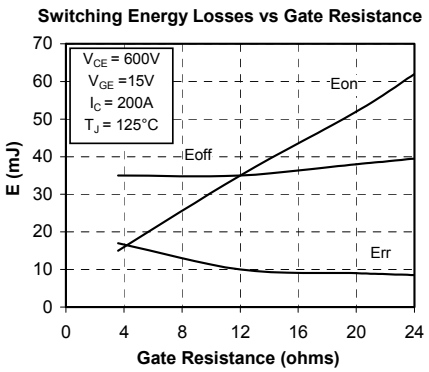
Typical Performance Curve

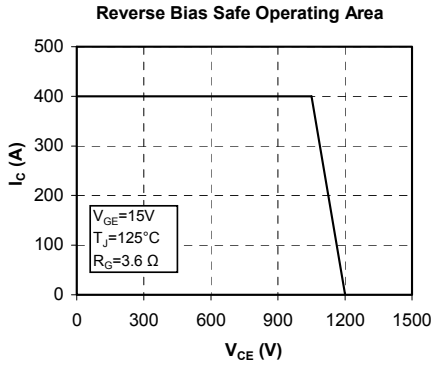


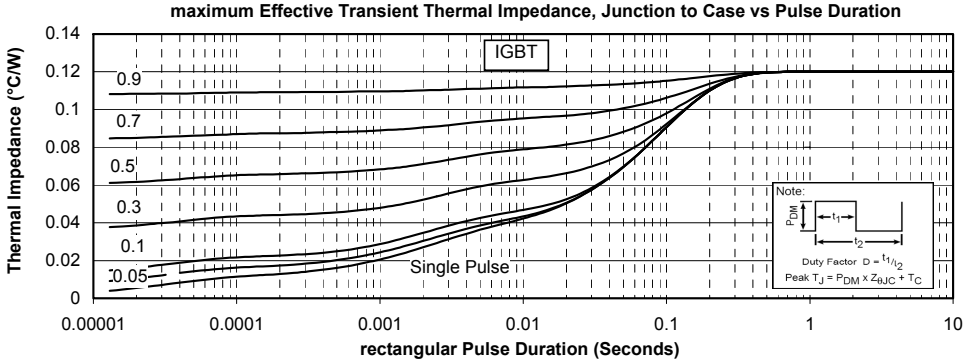




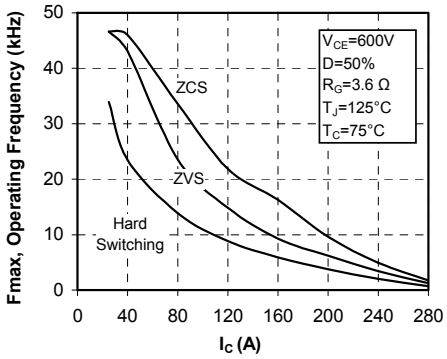




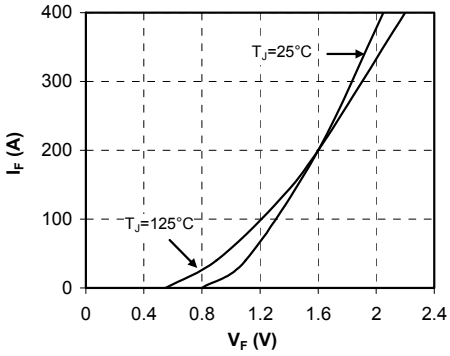




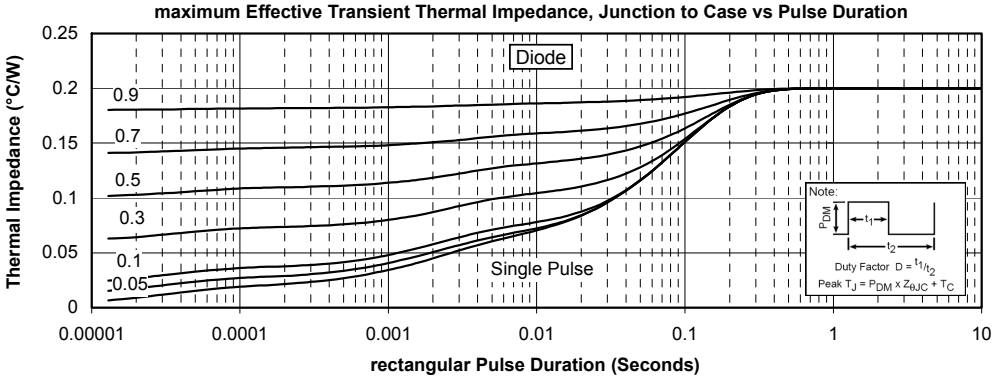
Operating Frequency vs Collector Current



Forward Characteristic of diode



maximum Effective Transient Thermal Impedance, Junction to Case vs Pulse Duration



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