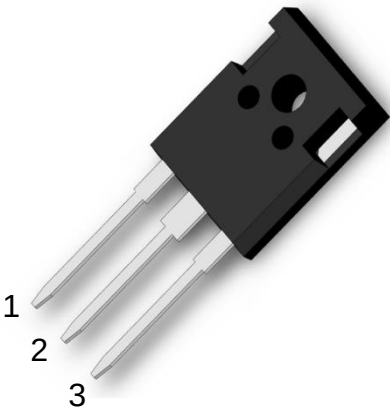


PRODUCT FEATURES

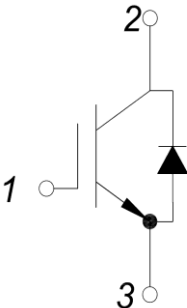
- ☐ 1350V chip in trench FS-technology
- ☐ $V_{CE(sat)}$ with positive temperature coefficient
- ☐ Low switching losses
- ☐ Low EMI



APPLICATIONS

- ☐ HInductive cooking
- ☐ Inverterized microwave ovens
- ☐ Resonant converters
- ☐ Soft switching applications

1.Gate
2.Collector
3.Emitter



Type	V_{CES}	I_C	$V_{CE(sat)}$ $T_J=25^{\circ}C$	T_{Jmax}	Marking	Package
MM20G3T135B	1350V	20A	1.70V	175 $^{\circ}C$	MM20G3T135B	TO-247

ABSOLUTE MAXIMUM RATINGS($T_C=25^{\circ}C$ unless otherwise specified)

Symbol	Parameter/Test Conditions		Values	Unit
V_{CES}	Collector Emitter Voltage	$T_J=25^{\circ}C$	1350	V
V_{GES}	Gate Emitter Voltage		± 20	
I_C	DC Collector Current	$T_C=25^{\circ}C$	40	A
		$T_C=100^{\circ}C$	20	
I_{Cpuls}	Pulsed collector current,tp limited by T_{Jmax}		60	
P_{tot}	Power Dissipation Per IGBT		333	W
V_{RRM}	Repetitive Reverse Voltage	$T_J=25^{\circ}C$	1350	V
$I_{F(AV)}$	Average Forward Current	$T_C=100^{\circ}C$	20	A
I_{Fpuls}	Diode pulsed current,tp limited by T_{Jmax}		60	
T_{Jmax}	Max. Junction Temperature		175	$^{\circ}C$
T_{Jop}	Operating Temperature		-40~175	
T_{stg}	Storage Temperature		-55~150	
Torque	to heatsink	Recommended (M3)	1.1	Nm
Weight			8	g

MM20G3T135B

IGBT

ELECTRICAL CHARACTERISTICS ($T_C=25^{\circ}\text{C}$ unless otherwise specified)

Symbol	Parameter/Test Conditions		Min.	Typ.	Max.	Unit	
V _{GE(th)}	Gate Emitter Threshold Voltage	V _{CE} =V _{GE} , I _C =0.5mA	5.1	5.8	6.4	V	
V _{CE(sat)}	Collector Emitter Saturation Voltage	I _C =20A, V _{GE} =15V, T _J =25℃		1.7	1.9		
		I _C =20A, V _{GE} =15V, T _J =125℃		1.95			
		I _C =20A, V _{GE} =15V, T _J =175℃		2.05			
I _{CES}	Collector Leakage Current	V _{CE} =1350V, V _{GE} =0V, T _J =25℃			100	μA	
		V _{CE} =1350V, V _{GE} =0V, T _J =175℃			2.5	mA	
I _{GES}	Gate Leakage Current	V _{CE} =0V,V _{GE} =±20V, T _J =25℃	-100		100	nA	
R _{gint}	Integrated Gate Resistor			none		Ω	
Q _g	Gate Charge	V _{CE} =600V, I _C =20A , V _{GE} =15V		0.195		μC	
C _{ies}	Input Capacitance	V _{CE} =25V, V _{GE} =0V, f =1MHz		1.65		nF	
C _{res}	Reverse Transfer Capacitance			50		pF	
t _{d(off)}	Turn off Delay Time	V _{CC} =600V,I _C =20A R _G =15Ω, V _{GE} =15V, Inductive Load	T _J =25℃		320		ns
			T _J =175℃		390		ns
t _f	Fall Time		T _J =25℃		60		ns
			T _J =175℃		120		ns
E _{off}	Turn off Energy		T _J =25℃		1.5		mJ
			T _J =175℃		2.5		mJ
R _{thJC}	Junction to Case Thermal Resistance （Per IGBT）				0.45	K /W	

Anti-Parallel Diode

ELECTRICAL CHARACTERISTICS ($T_C=25^{\circ}\text{C}$ unless otherwise specified)

Symbol	Parameter/Test Conditions		Min.	Typ.	Max.	Unit
V_F	Forward Voltage	$I_F=20\text{A}, V_{GE}=0\text{V}, T_J=25^{\circ}\text{C}$		1.8	2.05	V
		$I_F=20\text{A}, V_{GE}=0\text{V}, T_J=125^{\circ}\text{C}$		1.95		
		$I_F=20\text{A}, V_{GE}=0\text{V}, T_J=175^{\circ}\text{C}$		2.05		
R_{thJCD}	Junction to Case Thermal Resistance (Per Diode)				0.45	K /W

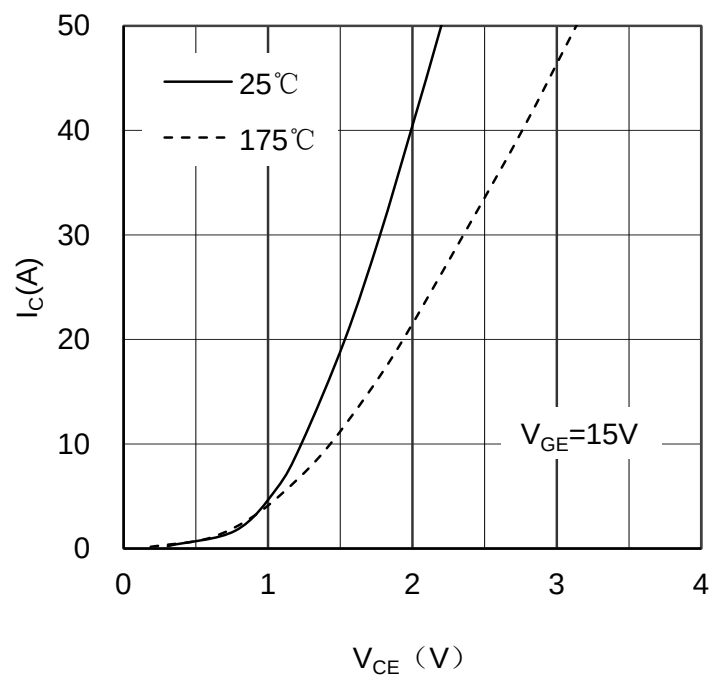


Figure 1. Typical Output Characteristics IGBT

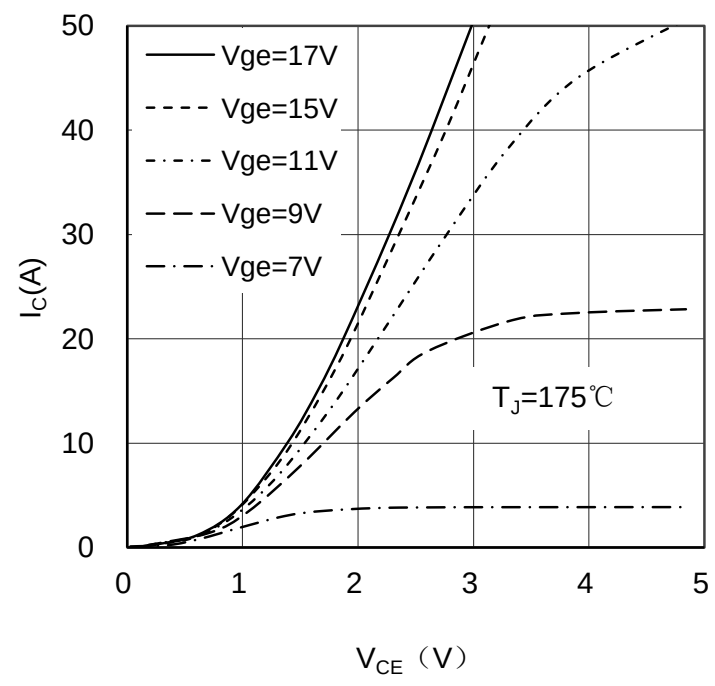


Figure 2. Typical Output Characteristics IGBT

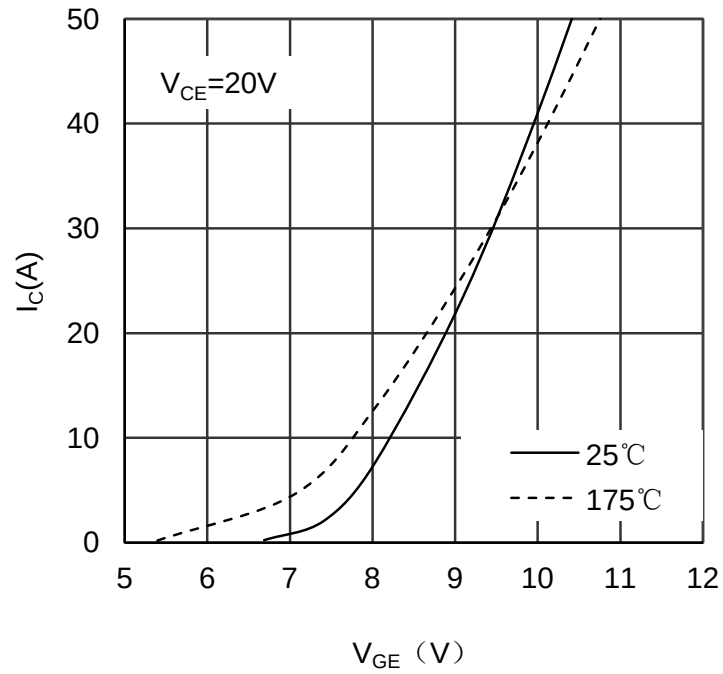


Figure 3. Typical Transfer characteristics IGBT

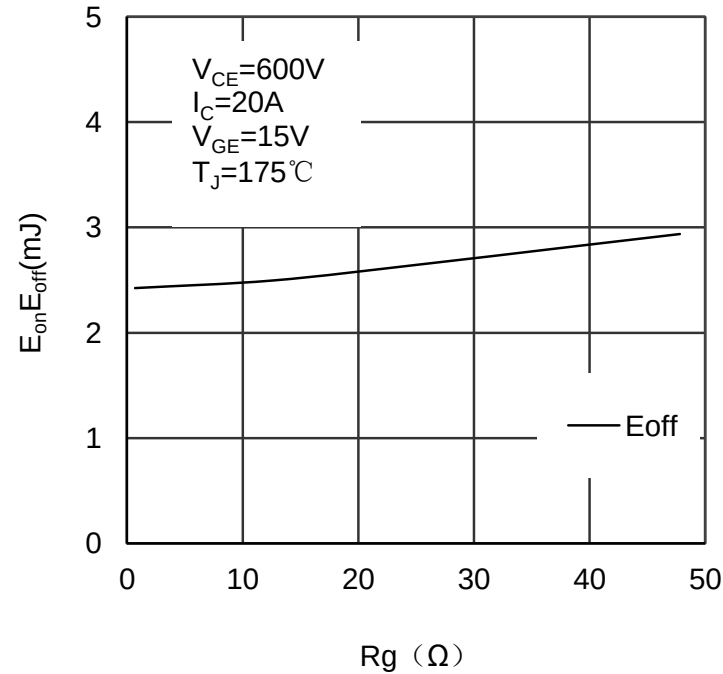


Figure 4. Switching Energy vs Gate Resistor IGBT

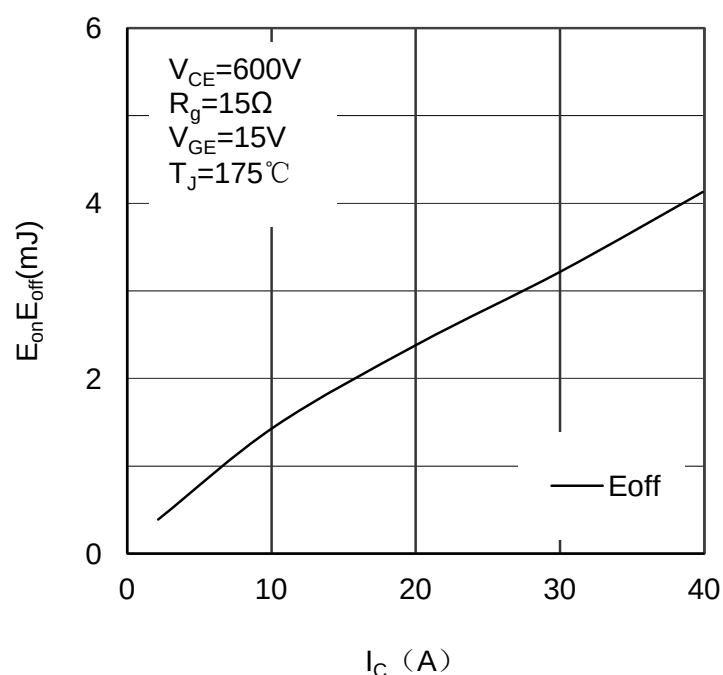


Figure 5. Switching Energy vs Collector Current IGBT

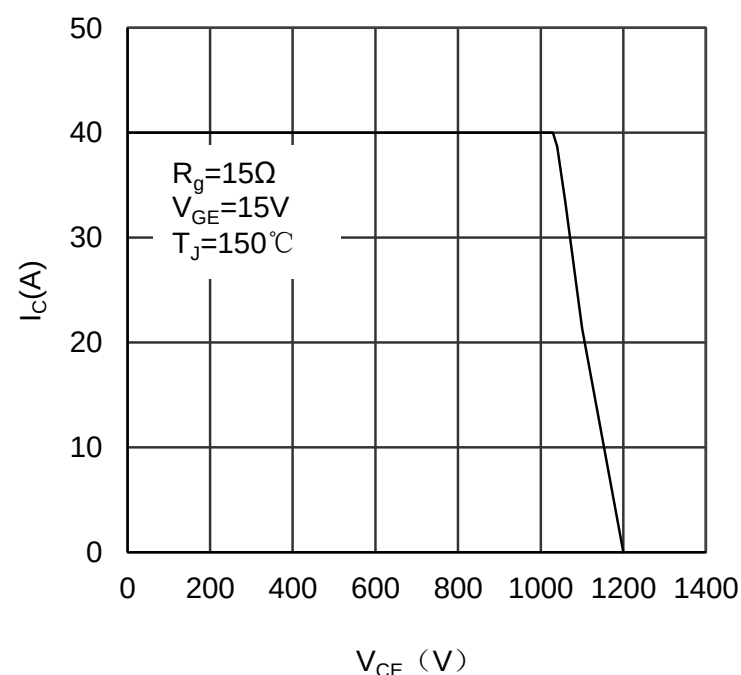


Figure 6. Reverse Biased Safe Operating Area IGBT

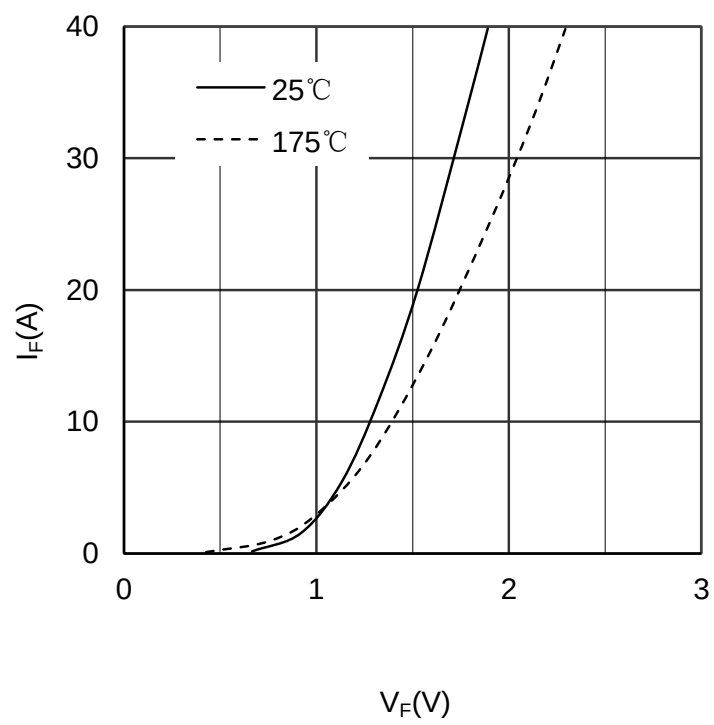


Figure 7. Diode Forward Characteristics Diode

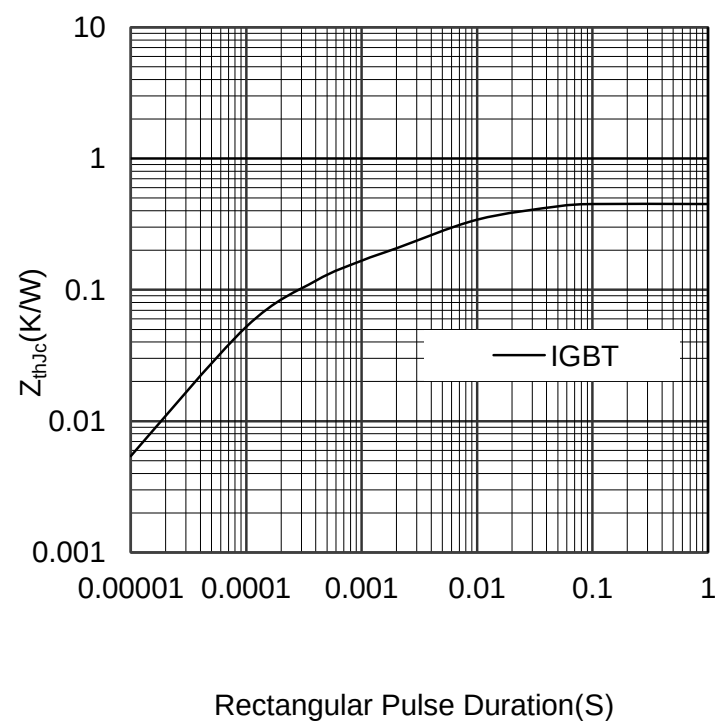


Figure 8. Transient Thermal Impedance of Diode and IGBT

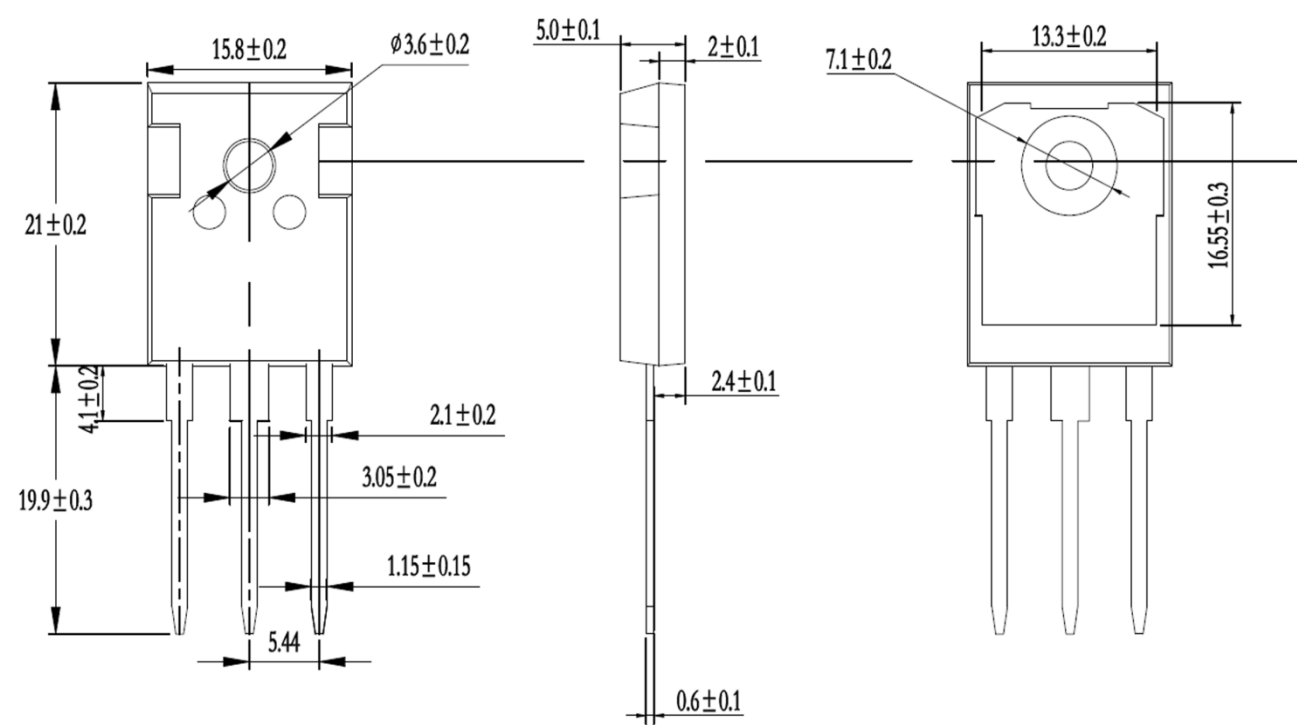


Figure 9. Package Outline