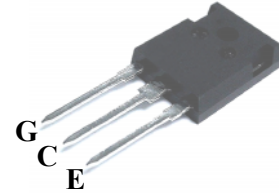


PRELIMINARY DATASHEET
1200V 28A IGBT with anti-parallel Diode in TO247 Package

- High speed switching
- Higher system efficiency
- Soft current turn-off waveforms
- Pb-free lead finish; RoHS compliant


MAXIMUM RATINGS, at $T_j = 25^\circ\text{C}$, unless otherwise specified

Parameter	Symbol	Value	Units
Collector-emitter voltage	V_{CE}	1200	V
DC collector current, limited by T_{jmax} $T_C = 25^\circ\text{C}$	I_C	55	A
$T_C = 100^\circ\text{C}$		28	
Pulsed collector current, t_p limited by T_{jmax}	I_{Cpulse}	240	
Short circuit withstand time	t_{sc}	10	μs
Gate-emitter voltage	V_{GE}	± 30	V
Operating junction and storage temperature	T_j, T_{stg}	-55... +150	$^\circ\text{C}$

Thermal Resistance, at $T_j = 25^\circ\text{C}$, unless otherwise specified

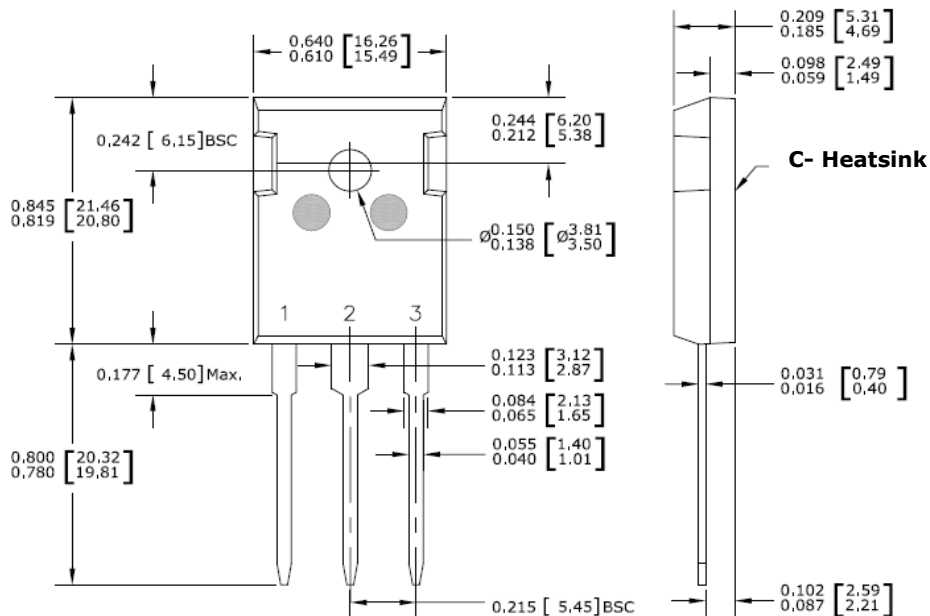
Parameter	Symbol	Max. Value	Units
Characteristics			
IGBT thermal resistance, junction to case	R_{thJC}	0.42	$^\circ\text{C/W}$
Thermal resistance, junction to ambient	R_{thJA}	40	

ELECTRICAL CHARACTERISTICS, at $T_j = 25^\circ\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Value			Unit
			Min.	Typ.	Max.	
Static Characteristics						
Collector-emitter breakdown voltage	$V_{(BR)CES}$	$V_{GE} = 0\text{V}, I_C = 250\mu\text{A}$	1200	-	-	V
Collector-emitter saturation voltage	$V_{CE(sat)}$	$V_{GE} = 15\text{V}, I_C = 30\text{A}$	-	2.1	2.3	
Gate-emitter threshold voltage	$V_{GE(th)}$	$I_C = 250\mu\text{A}, V_{CE} = V_{GE}$	4.0	5.0	6.0	
Zero gate voltage collector current	I_{CES}	$V_{CE} = 1200\text{V}, V_{GE} = 0$	-	-	250	μA
Gate-emitter leakage current	I_{GES}	$V_{CE} = 0\text{V}, V_{GE} = 30\text{V}$	-	-	± 100	nA
Dynamic Characteristics						
Input capacitance	C_{iss}	$V_{CE} = 30\text{V}, V_{GE} = 0\text{V}, f = 100\text{kHz}$	-	645	-	pF
Output capacitance	C_{oss}		-	206	-	
Reverse transfer capacitance	C_{riss}		-	115	-	
Gate charge	Q_{Gate}	$V_{CC} = 960\text{V}, I_C = 30\text{A}, V_{GE} = 15\text{V}$	-	178	-	nC
Integrated gate resistor	$R_{G(int)}$		-	2.1	-	Ω

SWITCHING CHARACTERISTICS, Inductive Load at $T_j = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Value			Unit
			Min.	Typ.	Max.	
IGBT Characteristics						
Turn-on delay time	$t_{d(on)}$	$T_c = 25^\circ\text{C}$ $V_{CC} = 600\text{V}$ $I_C = 30\text{A}$ $V_{GE} = 0/15\text{V}$ $R_G = 28\Omega$ Inductive load	-	54	-	ns
Rise time	t_r		-	72	-	
Turn-off delay time	$t_{d(off)}$		-	671	-	
Fall time	t_f		-	44	-	mJ
Turn-on energy	E_{on}		-	2.9	-	
Turn-off energy	E_{off}		-	2.2	-	
Total switching energy	E_{ts}	-	5.1	-		

Package Outline Drawing


CAUTION: These devices are ESD sensitive. Use proper handling procedure.

Disclaimer

These specifications may not be considered as a guarantee of components characteristics. Components have to be tested depending on intended application as adjustments may be necessary. The use of **iQXPRZ Power Inc.** components in life support appliances and systems are subject to written approval of **iQXPRZ Power Inc.**