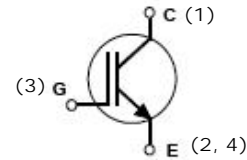


**PRELIMINARY DATASHEET**
**1200V 150A, SPT+ IGBT technology in Isolated SOT227 Package**
**APPLICATIONS**

- General inverters
- Uninterruptible power supplies (UPS)
- Welders

**FEATURES**

- Ultra low loss IGBT
- Highly rugged SPT design
- Pb-free finished; **RoHS Compliant**


**MAXIMUM RATINGS**

Parameter	Symbol	Value	Units
Collector-emitter voltage	$V_{CE}$	1200	V
DC collector current, $T_{jmax}=150^{\circ}C$ $T_C=80^{\circ}C$	$I_C$	150	A
Peak collector current	$I_{CM}$	300	
Gate-emitter voltage	$V_{GES}$	$\pm 20$	V
IGBT short circuit SOA $V_{CC} = 900\text{ V}$ , $V_{CEM} \leq 1200\text{ V}$ , $V_{GE} \leq 15\text{ V}$ , $T_j = 125^{\circ}C$	$t_{PSC}$	10	$\mu s$
Operating junction and storage temperature	$T_j, T_{stg}$	-40... +150	$^{\circ}C$

**Thermal and Isolation Characteristics**

Parameter	Symbol	Max. Value	Units
<b>Characteristics</b>			
IGBT thermal resistance, junction to case	$R_{thJC}$	0.14	K/W
Isolation voltage, RMS (measured between terminals and mounting base, 50-60 Hz, for 1-3 seconds)	$V_{ISO}$	3000	V

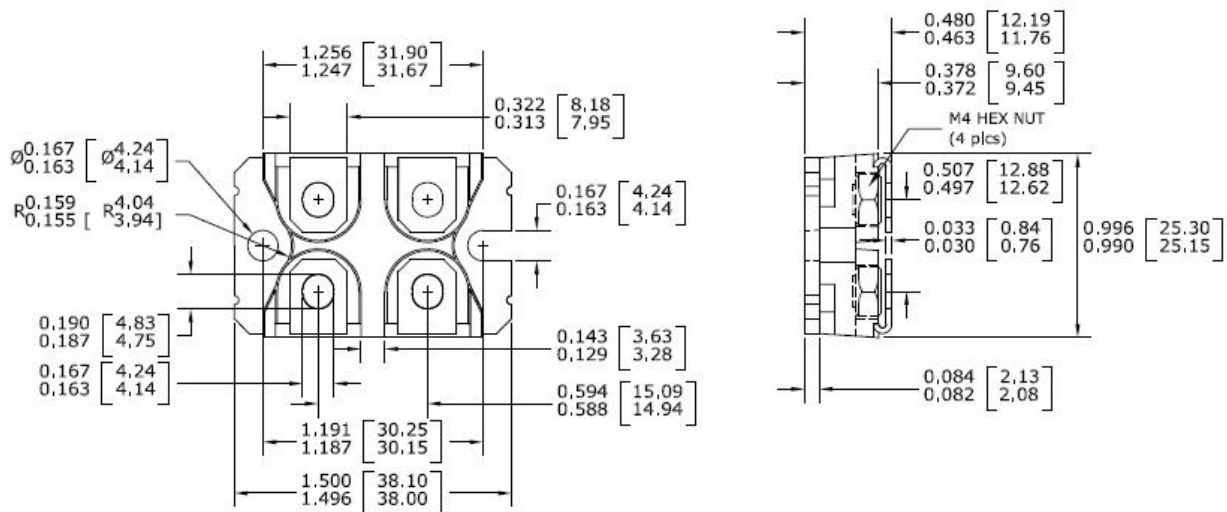
**ELECTRICAL CHARACTERISTICS**, at  $T_j = 25^\circ\text{C}$ , unless otherwise specified

Parameter	Symbol	Conditions	Value			Unit
			Min.	Typ.	Max.	
<b>Static Characteristics</b>						
Collector-emitter breakdown voltage	$V_{(BR)CES}$	$V_{GE} = 0\text{V}, I_C = 1\text{mA}$	1200	-	-	V
Collector-emitter saturation voltage at $T_{vj}=25^\circ\text{C}$ at $T_{vj}=125^\circ\text{C}$	$V_{CE(sat)}$	$V_{GE} = 15\text{V}, I_C = 150\text{A}$	- -	1.9 2.1	- -	
Gate-emitter threshold voltage	$V_{GE(th)}$	$I_C = 6\text{mA}, V_{CE} = V_{GE}$	5	6.2	7	
Zero gate voltage collector current at $T_{vj} = 25^\circ\text{C}$ at $T_{vj} = 125^\circ\text{C}$	$I_{CES}$	$V_{CE} = 1200\text{V}, V_{GE} = 0$	- -	- 600	100 -	$\mu\text{A}$
Gate-emitter leakage current	$I_{GES}$	$V_{CE} = 0\text{V}, V_{GE} = 20\text{V}$ at $T_j = 125^\circ\text{C}$	-200	-	200	nA
Internal gate resistance	$R_{Gint}$		-	2	-	$\Omega$
<b>Dynamic Characteristics</b>						
Input capacitance	$C_{iss}$	$V_{CE} = 25\text{V},$ $V_{GE} = 0\text{V},$ $f = 1\text{MHz}$	-	10.6	-	nF
Output capacitance	$C_{oss}$		-	0.71	-	
Reverse transfer capacitance	$C_{rss}$		-	0.47	-	

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

Parameter	Symbol	Conditions	Value			Unit
			Min.	Typ.	Max.	
<b>IGBT Characteristics</b>						
Turn-on delay time $T_j = 25^\circ\text{C}$ $T_j = 125^\circ\text{C}$	$t_{d(on)}$	$V_{CC}=600\text{V}, I_C = 150\text{A},$ $V_{GE}=\pm 15\text{V},$ $R_G=6.8\Omega, L_J=60\text{nH}$ Inductive Load	- -	190 220	- -	ns
Rise time $T = 25^\circ\text{C}$ $T_j = 125^\circ\text{C}$	$t_r$		- -	60 60	- -	
Turn-off delay time $T_j = 25^\circ\text{C}$ $T_j = 125^\circ\text{C}$	$t_{d(off)}$		- -	460 530	- -	
Fall time $T_j = 25^\circ\text{C}$ $T_j = 125^\circ\text{C}$	$t_f$		- -	55 75	- -	
Turn-on energy $T_j = 25^\circ\text{C}$ $T_j = 125^\circ\text{C}$	$E_{on}$		- -	11.2 16.7	- -	mJ
Turn-off energy $T_j = 25^\circ\text{C}$ $T_j = 125^\circ\text{C}$	$E_{off}$		- -	9.8 15.3	- -	
Short Circuit Current	$I_{SC}$		$V_{CC} = 900\text{V}, V_{GE} = 15\text{V}$ $t_{psc} \leq 10\mu\text{s}$ $V_{CEM\_1200\text{V}}$ at $T_C = 125^\circ\text{C}$	-	650	-
Gate Charge	$Q_g$	$V_{CE} = 600\text{V}, I_C = 150\text{A}$ $V_{GE} = -15\text{V} \dots 15\text{V}$	-	1530	-	nC

**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.**