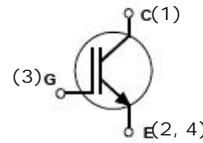


PRELIMINARY DATASHEET
1200V 75A IGBT in SPT+ Technology in Isolated SOT227 Package

- Ultra low loss thin IGBT
- Smooth switching for good EMC
- Highly rugged SPT+ design
- Optimized for paralleling
- Pb free finished; 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 $T_C = 80^\circ\text{C}$	I_C	75	A
Peak collector current	I_{CM}	150	
Gate-emitter voltage	V_{GES}	± 20	V
IGBT short circuit SOA ¹ $V_{CC} = 900\text{V}$, $V_{CEM} = 1200\text{V}$, $V_{GE} = 15\text{V}$, $T_{vj} = 125^\circ\text{C}$	t_{PSC}	10	μs
Soldering temperature Wave soldering, 1.6 mm (0.063 in.) from case for 10s	T_s	300	$^\circ\text{C}$
Operating junction and storage temperature	T_j, T_{stg}	-40... +150	$^\circ\text{C}$

Thermal and Isolation Characteristics

Parameter	Symbol	Max. Value	Units
Characteristics			
IGBT thermal resistance, junction to case	R_{thJC}	0.22	K/W
Isolation voltage, RMS (measured between terminals and mounting base, 50-60 Hz, for 1-3 seconds)	V_{ISO}	3000	V

¹ Allowed number of short circuits: < 1000; time between short circuits: > 1s.

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

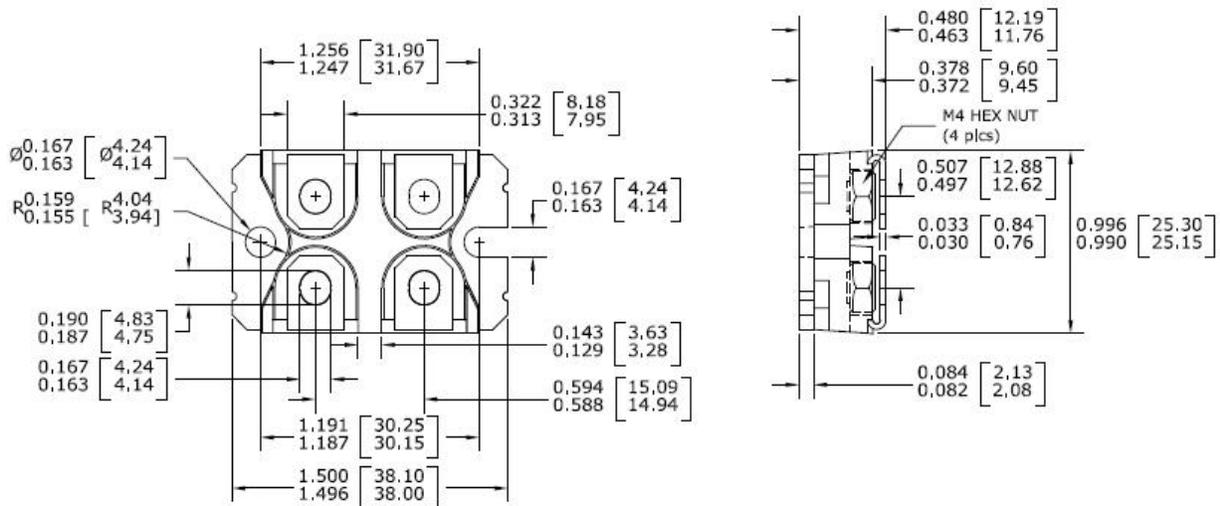
Parameter	Symbol	Conditions	Value			Unit
			Min.	Typ.	Max.	
Static Characteristics						
Collector-emitter breakdown voltage	$V_{(BR)CES}$	$V_{GE} = 0\text{V}$, $I_C = 1\text{mA}$	1200	-	-	V
Collector-emitter saturation voltage $T_j = 25^\circ\text{C}$ $T_j = 125^\circ\text{C}$	$V_{CE(sat)}$	$V_{GE} = 15\text{V}$, $I_C = 75\text{A}$	1.7 -	1.9 2.1	2.3 -	
Gate-emitter threshold voltage	$V_{GE(th)}$	$I_C = 3\text{mA}$, $V_{CE} = V_{GE}$	5.0	6.2	7.0	
Zero gate voltage collector current at $T = 25^\circ\text{C}$ at $T_j = 125^\circ\text{C}$	I_{CES}	$V_{CE} = 1200\text{V}$, $V_{GE} = 0$	- -	- 85	100 -	μA
Gate-emitter leakage current	I_{GES}	$V_{CE} = 0\text{V}$, $V_{GE} = 20\text{V}$ $T_j = 125^\circ\text{C}$	-200	-	200	nA
Internal gate resistance	R_{Gint}			3		
Dynamic Characteristics						
Input capacitance	C_{iss}	$V_{CE} = 25\text{V}$, $V_{GE} = 0\text{V}$, $f = 1\text{MHz}$	-	5.52	-	nF
Output capacitance	C_{oss}		-	0.40	-	
Reverse transfer capacitance	C_{rss}		-	0.26	-	

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

Parameter	Symbol	Conditions	Value			Unit
			Min.	Typ.	Max.	
IGBT Characteristics						
Turn-on delay time at $T = 25^\circ\text{C}$ at $T_j = 125^\circ\text{C}$	$t_{d(on)}$	$V_{CC} = 600\text{V}$, $I_C = 75\text{A}$, $V_{GE} = \pm 15\text{V}$, $R_G = 15\Omega$, $L_J = 60\text{nH}$ Inductive Load	-	165 175	-	ns
Rise time at $T = 25^\circ\text{C}$ at $T_j = 125^\circ\text{C}$	t_r		-	75 70	-	
Turn-off delay time at $T = 25^\circ\text{C}$ at $T_j = 125^\circ\text{C}$	$t_{d(off)}$		-	435 500	-	
Fall time at $T = 25^\circ\text{C}$ at $T_j = 125^\circ\text{C}$	t_f		-	50 70	-	
Turn-on energy at $T = 25^\circ\text{C}$ at $T_j = 125^\circ\text{C}$	E_{on}		-	9.3 12.4	-	mJ
Turn-off energy at $T = 25^\circ\text{C}$ at $T_j = 125^\circ\text{C}$	E_{off}		-	4.5 7.5	-	
Short Circuit Current	I_{SC}	$V_{CC} = 900\text{V}$, $V_{GE} = 15\text{V}$ $T_{psc} \leq 10\mu\text{s}$, $V_{CEM} \leq 1200\text{V}$, $T_C = 125^\circ\text{C}$	-	350	-	A
Gate Charge	Q_g	$V_{CE} = 600\text{V}$ $I_C = 75\text{A}$ $V_{GE} = -15\text{V}, 15\text{V}$	-	780	-	nC

1 Allowed number of short circuits: < 1000; time between short circuits: > 1s.
 2 Leakage inductance L_s and Stray capacity C_s due to dynamic test circuit.

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.**