

Super Solution Power Module

2pack IGBT Module

Features

- Soft Punch Through IGBT
 - low saturation voltage
 - positive temperature coefficient
 - fast switching(~20kHz)
 - high ruggedness(UIS tested)
- Free wheeling diodes with fast and soft reverse recovery
- Industrial standard package with insulated copper base plate
- 10us Short circuit rated
- Included gate surge protection function

Applications

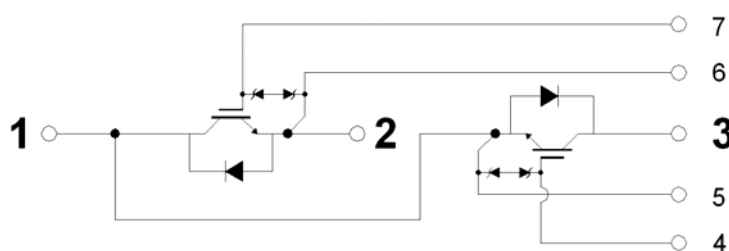
- Welder
- Switched Mode Power Supply / UPS
- Industrial Inverter



SUSPM™ 1

1200V / 75A

Internal Equivalent Circuit



Absolute Maximum Ratings

Item	Symbol	conditions	Ratings	Unit
IGBT	V _{CES}		1200	V
	V _{GES}	continuous	±20	V
	V _{GEM}	transient	±28	V
	I _C	T _C =80°C	75	A
	I _{CM}	T _C =80°C , t _p =1ms	150	A
	t _{SC}	T _C =125°C , V _{CC} =900V; V _{GE} =15V;	10	us
	T _J		-40 ~ +150	°C
	P _D	T _C =80°C	411	W
Diode	V _R RM		1200	V
	I _F (AV)	T _C =80°C	75	A
	I _{FRM}	T _C =80°C; t _p =1ms	150	A
	T _J		-40 ~ +150	°C
	P _D	T _C =80°C	179	W
Module	T _{Jop}	Operation temperature	-40...+125	°C
	T _{stg}	Storage temperature	-40...+125	°C
	V _{ISOL}	I _{ISOL} ≤1mA; 50/60 Hz; AC 1min	2500	V
	M _t	Main Terminal Mounting torque (M5)	2.5 – 5.0	Nm
	M _s	Heat sink Mounting torque (M6)	3.0 – 5.0	Nm

Characteristic Values ($T_c=25^{\circ}\text{C}$, unless otherwise specified)

Item	Symbol	conditions	min	typ	max	Unit
IGBT	$V_{CE(sat)}$	$T_c=25^{\circ}\text{C}$, $I_c=75\text{A}$; $V_{GE}=15\text{V}$ $T_c=125^{\circ}\text{C}$,		1.8 2.0		V V
	$V_{GE(th)}$	$I_c=3\text{mA}$; $V_{GE}=V_{CE}$; $T_c=25^{\circ}\text{C}$	5.0	6.2	7.0	V
	I_{CES}	$T_c=25^{\circ}\text{C}$, $V_{CE}=600\text{V}$; $V_{GE}=0\text{V}$ $T_c=125^{\circ}\text{C}$		300	100	μA μA
	I_{GES}	$V_{CE}=0\text{V}$; $V_{GE}=\pm 20$	-200		200	nA
	$t_{(on)}$	$T_c=25^{\circ}\text{C}$ $T_c=125^{\circ}\text{C}$		150 160		ns
	t_r	$T_c=25^{\circ}\text{C}$ $T_c=125^{\circ}\text{C}$		65 65		ns
	$t_{d(off)}$	$T_c=25^{\circ}\text{C}$ $T_c=125^{\circ}\text{C}$		440 500		ns
	t_f	$T_c=25^{\circ}\text{C}$ $T_c=125^{\circ}\text{C}$		55 70		ns
	E_{on}	$T_c=25^{\circ}\text{C}$ $T_c=125^{\circ}\text{C}$		7.45 10.3		mJ
	E_{off}	$T_c=25^{\circ}\text{C}$ $T_c=125^{\circ}\text{C}$		4.9 7.8		mJ
	C_{ies}	$V_{CC}=25\text{V}$; $V_{GE}=0\text{V}$; $f=1\text{MHz}$		5520		pF
	C_{res}	$V_{CC}=25\text{V}$; $V_{GE}=0\text{V}$; $f=1\text{MHz}$		260		pF
	Q_G	$V_{CC}=600\text{V}$; $V_{GE}=15\text{V}$; $I_c=75\text{A}$		780		nC
	R_{Gin}	$T_c=25^{\circ}\text{C}$		3		ohm
	I_{SC}	$t_p \leq 10\mu\text{s}$, $T_c=125^{\circ}\text{C}$, $V_{CC}=900\text{V}$, $V_{GE}=15\text{V}$;		420		A
	R_{thJC}	(per IGBT)			0.17	$^{\circ}\text{C/W}$
Diode	V_F	$T_c=25^{\circ}\text{C}$; $I_F(AV)=75\text{A}$; $V_{GE}=0\text{V}$ $T_c=125^{\circ}\text{C}$;		1.6 1.6	1.8 1.8	V V
	I_{rr}	$T_c=25^{\circ}\text{C}$ $T_c=125^{\circ}\text{C}$		65		A
	Q_{rr}	$T_c=25^{\circ}\text{C}$ $T_c=125^{\circ}\text{C}$		18		μC
	E_{rr}	$T_c=25^{\circ}\text{C}$ $T_c=125^{\circ}\text{C}$		6.2		mJ
	R_{thJC}	(per diode)			0.39	$^{\circ}\text{C/W}$
Module	d_s	Creepage distance along surface		20		mm
	d_A	Clearance distance in the air		11		mm
	T_s	Pin terminal soldering temperature, 10sec		260		$^{\circ}\text{C}$
	weight			190		gr

Package Dimensions (dimensions are millimeters, mm)

