Super Solution Power Module

2pack IGBT Module

SUSPM™ 1

1200V / 100A

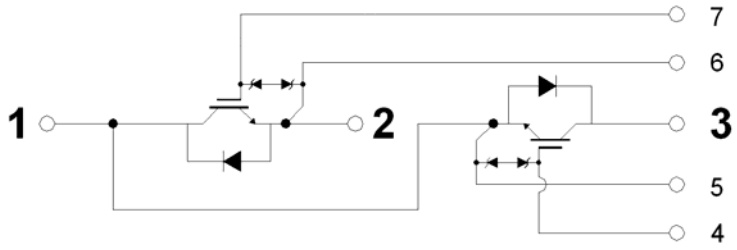
Features

- 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

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	100	A
	I_{CM}	T_C=80°c , t_P=1ms	200	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	500	W
Diode	V_{RRM}		1200	V
	$I_{F(AV)}$	T_C=80°c	100	A
	I_{FRM}	T_C=80°c; t_P=1ms	200	A
	T_J		-40 ~ +150	°c
	P_D	T_C=80°c	230	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
	Mt	Main Terminal Mounting torque (M5)	2.5 – 5.0	Nm
	Ms	Heat sink Mounting torque (M6)	3.0 – 5.0	Nm

Characteristic Values (T_C=25°c, unless otherwise specified)

Item	Symbol	conditions		min	typ	max	Unit
IGBT	$V_{CE(sat)}$	T_C= 25°c, I_C=100A; V_{GE}=15V T_C=125°c,			1.8 2.0		V V
	$V_{GE(th)}$	I_C=4mA; V_{GE}=V_{CE}; T_C= 25°c		5.0	6.2	7.0	V
	I_{CES}	T_C= 25℃, V_{CE}=600V; V_{GE}=0V T_C=125℃			 400	100	uA uA
	I_{GES}	V_{CE}=0V; V_{GE}=±20		-200		200	nA
	$t_{(on)}$	T_C= 25°c T_C= 125°c	Inductive load V_{CC}=600V; I_C= 100A V_{GE}=15V; R_G=10ohm;		125 135		ns
	t_r	T_C= 25°c T_C= 125°c			60 60		ns
	$t_{d(off)}$	T_C= 25°c T_C= 125°c			420 490		ns
	t_f	T_C= 25°c T_C= 125°c			60 75		ns
	E_{on}	T_C= 25°c T_C= 125°c			8.6 12.4		mJ
	E_{off}	T_C= 25°c T_C= 125°c			6.8 10.8		mJ
	C_{ies}	V_{CC}=25V; V_{GE}=0V; f=1MHz			7430		pF
	C_{res}	V_{CC}=25V; V_{GE}=0V; f=1MHz			340		pF
	Q_G	V_{CC}=600V; V_{GE}=15V; I_C=100A			1050		nC
	R_{Gin}	T_C= 25°c			2		ohm
	I_{SC}	tp≤10us, T_C=125°c , V_{CC}=900V, V_{GE}=15V;			470		A
	R_{thJC}	(per IGBT)				0.14	℃/W
Diode	V_F	T_C=25°c ; $I_{F(AV)}$=100A; V_{GE}=0V T_C=125°c ;			1.6 1.6	1.8 1.8	V V
	I_{rr}	T_C= 25°c T_C= 125°c	Inductive load V_R=600V ; I_F=100A; dI_F/dt=3000A/us V_{GE}=-15V; R_G=10ohm		 90		A
	Q_{rr}	T_C= 25°c T_C= 125°c			 28		uC
	E_{rr}	T_C= 25°c T_C= 125°c			 7.0		mJ
	R_{thJC}	(per diode)				0.3	℃/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		℃
	weight				190		gr

Package Dimensions (dimensions are millimeters, mm)

Tolerance : ±0.2mm