Super Solution Power Module (SUSPM™)

2pack IGBT Module



SUSPM™ 1

1700V / 75A

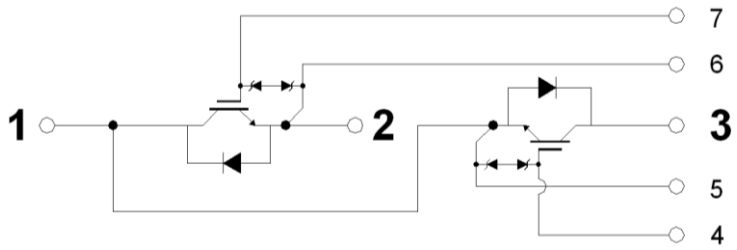
Features

- Trench Field Stop Technology 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@ T_J=125℃ Short circuit rated
- Included gate surge protection function

Applications

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

Internal Equivalent Circuit



Absolute Maximum Ratings

Item	Symbol	conditions	Ratings	Unit
IGBT	V_{CES}		1700	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_J=125°c , V_{CC}=1000V; V_{GE}=15V;	10	us
	$T_{J,MAX}$		150	°c
	P_D	T_C=80°c	466	W
Diode	V_{RRM}		1700	V
	$I_{F(AV)}$	T_C=80°c	75	A
	I_{FRM}	T_C=80°c; t_P=1ms	150	A
	$T_{J,MAX}$		150	°c
	P_D	T_C=80°c	212	W
Module	$T_{J,OP}$	Operating temperature	-40…+125	°c
	T_{STG}	Storage temperature	-40…+125	°c
	V_{ISOL}	I_{ISOL}≤1mA; 50/60 Hz; AC 1min	3400	V
	Mt	Main Terminal Mounting torque (M5)	2.5 – 5.0	Nm
	Ms	Heat sink Mounting torque (M6)	3.0 – 5.0	Nm

This is a target specification for development and specifications may change in any manner without notice

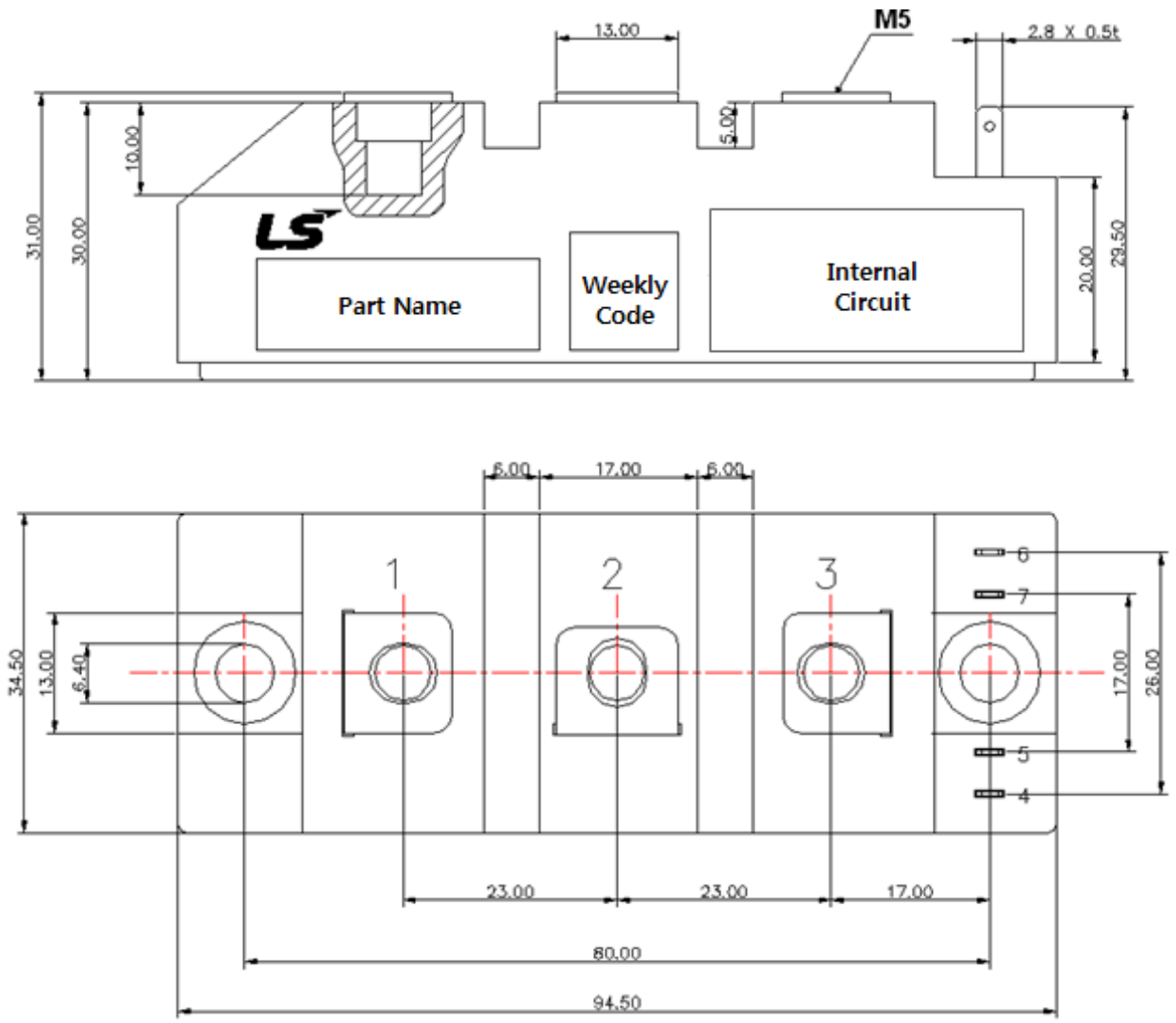
Characteristic Values (T_C=25°c, unless otherwise specified)

Item	Symbol	conditions		min	typ	max	Unit
IGBT	$V_{CE(sat)}$	T_C= 25°c, I_C=75A; V_{GE}=15V T_C=125°c,			2.0 2.4	2.45	V V
	$V_{GE(th)}$	I_C=3.0mA; V_{GE}=V_{CE}; T_C= 25°c		5.2	5.8	6.4	V
	I_{CES}	T_C= 25℃, V_{CE}=1700V; V_{GE}=0V T_C=125℃				1	mA
	I_{GES}	V_{CE}=0V; V_{GE}=±20		-400		400	nA
	$t_{d(on)}$	T_C= 25°c T_C= 125°c	Inductive load V_{CC}=900V, I_C= 75A V_{GE}=±15V, R_G=6.8ohm;		370 400		ns
	t_r	T_C= 25°c T_C= 125°c			40 50		ns
	$t_{d(off)}$	T_C= 25°c T_C= 125°c			650 800		ns
	t_f	T_C= 25°c T_C= 125°c			180 300		ns
	E_{on}	T_C= 25°c T_C= 125°c			16.5 24		mJ
	E_{off}	T_C= 25°c T_C= 125°c			16 23.5		mJ
	C_{ies}	V_{CC}=25V; V_{GE}=0V; f=1MHz			6.8		nF
	C_{res}	V_{CC}=25V; V_{GE}=0V; f=1MHz			0.22		nF
	Q_G	V_{CC}=900V; V_{GE}=15V; I_C=75A			0.45		uC
	R_{Gin}	T_C= 25°c			8.5		ohm
	I_{SC}	tp≤10us, T_j=125°c , V_{CC}=1000V, V_{GE}=15V;			300		A
	R_{thJC}	(per IGBT)				0.15	℃/W
Diode	V_F	T_C=25°c ; $I_{F(AV)}$=75A; V_{GE}=0V T_C=125°c ;			1.8 1.9	2.2	V V
	I_{rr}	T_C= 25°c T_C= 125°c	Inductive load V_R=900V ; I_F=75A; -dI_F/dt=1800A/us V_{GE}=-15V; R_G=6.8ohm		115 125		A
	Q_{rr}	T_C= 25°c T_C= 125°c			22 36.5		uC
	E_{rr}	T_C= 25°c T_C= 125°c			11.5 20.5		mJ
	R_{thJC}	(per diode)				0.33	℃/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

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Package Dimensions (dimensions are millimeters, mm)

Tolerance : ±0.2mm



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