LS Industrial Systems

LVH200G1203_Target
LVH200G1203Z*(1)_Target

SUSPM™

1200V 200A 2-Pack IGBT Module

Features

- Trench & Field Stop technology
  - Low saturation voltage
  - Low Turn-off losses
  - Short tail current
  - Positive temperature coefficient
  - High ruggedness
- Free wheeling diodes with fast and soft reverse recovery
- Industrial standard package with copper base plate
- Included ESD protection function *(1)
- High thermal performance (AlN substrate is used)

SUSPM1

94.5 x 48.5 x 30.1 mm

Applications

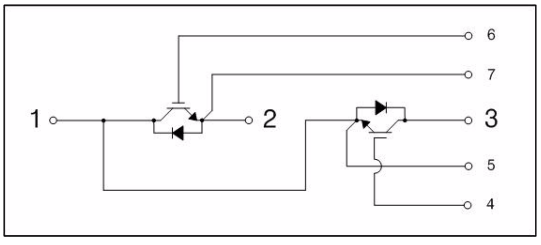
- Welder / Power Supply
- UPS / Inverter
- Industrial Motor Drive

Absolute Maximum Ratings T_C = 25°C unless otherwise noted

Item	Symbol	Conditions	Value	Units
IGBT	V_{CES}		1200	V
	V_{GES}		± 20	V
	I_C	@T_j= 150 °C, T_C = 25 °C, Continuous	400	A
		@T_j= 150 °C, T_C = 80°C, Continuous	200	A
	I_{CM}	@T_C = 80 °C, tp=1ms	400	A
	T_{SC}	Chip Level, @T_j = 150 °C, V_{GE}= 15V, V_{CES} < 1200V	10	μs
	T_j	Operating Junction Temperature *(2)	-40~125	°C
	P_D	@T_j= 150 °C, T_C = 25 °C	1500	W
		@T_j= 150 °C, T_C = 80 °C	800	W
Diode	V_{RRM}		1200	V
	I_F		200	A
	I_{FRM}	tp=1ms	400	A
	T_j	Operating Junction Temperature *(2)	-40~125	°C
Module	T_{stg}	Storage Temperature	-40~125	°C
	V_{iso}	@AC 1minute	2500	V
	M_t	Main Terminal Mounting torque(M6)	-	Nm
	M_S	Heat sink Mounting torque(M6)	-	Nm
	W	Weight	260	g

Internal Circuit & Pin Description

Pin Number	Pin Name	Pin Description
1	C2E1	Output
2	E2	Negative DC Link Ouput
3	C1	Positive DC Link Ouput
4	G1	Gate Input for High-side
5	E1	Emitter Input for High-side
6	G2	Gate Input for Low-side
7	E2	Emitter Input for Low-side



(Note *1) Option : Included ± 28V Zener Diode between Gate and Emitter
(Note *2) The Maximum junction temperature of chip is 150°C

Electrical Characteristics of IGBT T_C = 25°C unless otherwise noted

Static Characteristics

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
BV_{CES}	C-E Breakdown Voltage	V_{GE} = 0V, I_C = 1mA	1200	-	-	V
I_{CES}	C-E Cut-Off Current	V_{CE} = V_{CES}, V_{GE} = 0V	-	-	1	mA
I_{GES}	G-E Leakage Current	V_{GE} = V_{GES}, V_{CE} = 0V	-	-	-	nA
$V_{GE(th)}$	G-E Threshold Voltage	V_{GE} = V_{CE}, I_C=200mA	-	6.12	-	V
$V_{CE(sat)}$	Collector to Emitter Saturation Voltage	I_C =200A, V_{GE} = 15V, T_C=25°C	-	1.9	-	V
		I_C =200A, V_{GE} = 15V, T_C=125°C	-	2.3	-	V

Dynamic Characteristics

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
C_{ies}	Input Capacitance	V_{CE} = 25V, V_{GE} = 0V f = 1MHz, T_C=25°C	-	-	-	nF
C_{oes}	Output Capacitance		-	-	-	nF
C_{res}	Reverse Transfer Capacitance		-	-	-	nF
t_d(on)	Turn-On Delay Time	T_C=125°C,R_G=2.4 Ω L=100 μH, V_{DC}=600V V_{GE}=15V ~ -15V I_C=200A	-	-	-	ns
t_r	Rise Time		-	-	-	ns
t_d(off)	Turn-Off Delay Time		-	-	-	ns
t_f	Fall Time		-	-	-	ns
E_{on}	Turn-On Switching Loss		-	-	-	mJ
E_{off}	Turn-Off Switching Loss		-	-	-	mJ
E_{ts}	Total Switching Loss		-	-	-	mJ
Q_g	Total Gate Charge	V_{GE}=0V ~ +15V	-	-	-	μC
Q_{ge}	Gate-Emitter Charge		-	-	-	μC
Q_{gc}	Gate-Collector Charge		-	-	-	μC

Electrical Characteristics of Diode T_C = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions		Min	Typ	Max	Units
V_F	Diode Forward Voltage	I_F=200A, V_{GE}=0V	T_C = 25°C	-	1.87	-	V
			T_C = 125°C	-	1.83	-	
t_{rr}	Diode Reverse Recovery Time	R_G=2.4 Ω L=100 μH V_{DC}=600V V_{GE}=15V ~ -15V I_C=200A	T_C = 25°C	-	-	-	ns
			T_C = 125°C	-	-	-	
I_{RRM}	Diode Peak Reverse Recovery Current		T_C = 25°C	-	-	-	A
			T_C = 125°C	-	-	-	
Q_{rr}	Diode Reverse Recovery Charge		T_C = 25°C	-	-	-	μC
			T_C = 125°C	-	-	-	
E_{rr}	Diode Reverse Recovery Energy		T_C = 25°C	-	-	-	mJ
			T_C = 125°C	-	-	-	

Thermal Characteristics

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
$R_{th(J-C)}$	Thermal Resistance (IGBT Part)	Junction-to-Case	-	0.08	-	°C/W
$R_{th(J-C)D}$	Thermal Resistance (Diode Part)	Junction-to-Case	-	-	-	°C/W

* This specifications may not be considered as an assurance of characteristics and may not have same characteristics in case of using different test systems from @LSIS. We therefore strongly recommend prior consultation of our engineers.

Package Dimension(Dimension in mm)