JLHF150V120R34E7DN

L34 module with GEN7 IGBT and emitter controlled diode

Features

RoHS

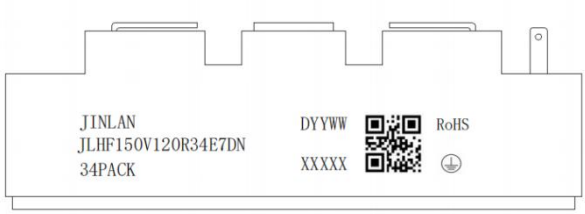
• Electrical features

- V_{CES} = 1200 V
- $I_{C\ nom}$ = 150 A / I_{CRM} = 300 A
- V_{CEsat} with positive temperature coefficient

L34

• Mechanical features

- Standard housing
- 2.5 kV AC 1 min insulation
- High creepage and clearance distances
- Isolated base plate

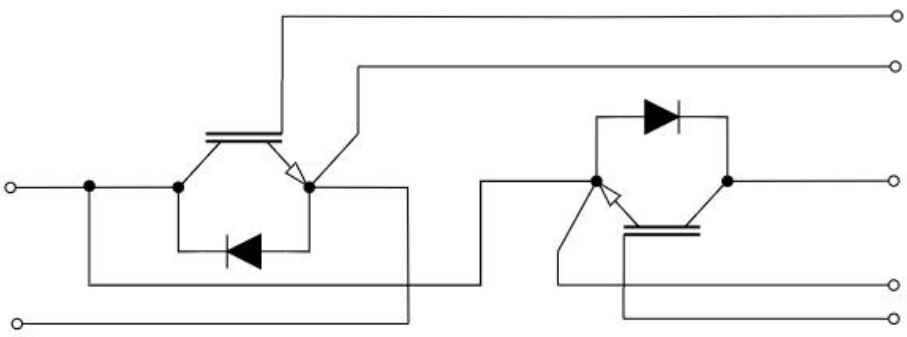


Typical Applications

• Inverters
• UPS (Uninterruptible Power Supplies)
• Motor Drives
• Welding Machine

JINLAN	= Company Name
JLHF150V120R34E7DN	= Specific Device Code
YYWW	= Year and Work Week Code
XXXXX	= Serial Number
QR code	= Custom Assembly Information

Description



Package Insulation coordination

Symbol	Parameter	Note or test condition	Values	Unit
V_{ISOL}	Isolation test voltage	RMS,f=50Hz,t=60s	2.5	kV
d_{creep}	Creepage distance	terminal to heatsink	17.0	mm
d_{creep}	Creepage distance	terminal to terminal	20.0	mm
d_{clear}	Clearance	terminal to heatsink	17.0	mm
d_{clear}	Clearance	terminal to terminal	9.5	mm
CTI	Comparative tracking index (electrical)		≥175	

Package Characteristic values

Symbol	Description	Note or test condition		Values			Unit
				Min.	Typ.	Max.	
L_{sCE}	Stray Inductance			--	30	--	nH
$R_{CC'+EE'}$	Module Lead Resistance, Terminal to Chip	T_C=25°C, per switch		--	0.75	--	mΩ
T_{stg}	Storage temperature			-40	--	125	°C
M	Mounting torque for module mounting	-Mounting according to valid application note	M5, Screw	2.5	--	5.0	Nm
M	Terminal connection torque	-Mounting according to valid application note	M6, Screw	3.0	--	5.0	Nm
G	Weight			--	150	--	g

IGBT

Absolute Maximum Ratings (Tc = 25°C unless otherwise noted)

Symbol	Description	Note or test condition	Value	Unit
V_{CES}	Collector-Emitter Voltage	T_{vj} = 25 °C	1200	V
I_{CDC}	Continuous Collector Current @ Tc = 80°C (T_{JMAX} = 175°C)		150	A
I_{CRM}	Repetitive peak collector current	Peak Collector Current@ tp=1ms	300	A
P_{tot}	Total power dissipation	T_C = 25°C, $T_{vj\,max}$ = 175°C	600	W
V_{GES}	Gate-emitter peak voltage		±30	V

Characteristics (Tc = 25°C unless otherwise noted)

Symbol	Parameter	Test Condition		Rating			Unit
				Min	Typ	Max	
$V_{CE(sat)}$	Collector−Emitter Saturation Voltage	I_C=150A, V_{GE}=15V	T_j=25°C	--	1.60	2.60	V
			T_j=125°C	--	1.70	--	
			T_j=150°C	--	1.85	--	
$V_{GE(TH)}$	Gate−Emitter Threshold Voltage	I_C = 3 mA, V_{CE} = V_{GE}		4.50	5.25	6.00	V
I_{CES}	Collector−Emitter Cutoff Current	V_{GE} =0V, V_{CE}=1200V, T_{vj}= 25°C		--	--	400	uA
I_{GES}	Gate-Emitter Leakage Current	V_{GE} = ±20V , V_{CE} = 0 V， T_{vj} = 25°C		--	--	200	nA
R_{Gint}	Internal Gate Resistance	T_{vj} = 25 °C		--	0.8	--	Ω
C_{ies}	Input Capacitance	V_{CE}=30V, V_{GE}=0V, f=1MHz, T_{vj} = 25°C		--	18.5	--	nF
C_{oes}	Output Capacitance			--	0.395	--	
C_{res}	Reverse Transfer Capacitance			--	0.075	--	
Q_g	Total Gate Charge	V_{CC}=960V, I_C=150A, V_{GE}=15V, T_{vj} = 25°C		--	0.595	--	uC
Q_{ge}	Gate to Emitter Charge			--	0.102	--	
Q_{gc}	Gate to Collector Charge			--	0.265	--	
$t_{d(ON)}$	Turn-on Delay Time	V_{CE}=600V, I_C=150A, V_{GE}=15/-5V, R_g=8Ω Inductive Load		--	148	--	ns
t_r	Rise Time			--	48	--	
$t_{d(OFF)}$	Turn-Off Delay Time			--	439	--	
t_f	Fall Time			--	30	--	
E_{on}	Turn-On Switching Loss			--	16.51	--	mJ

E_{off}	Turn-Off Switching Loss		--	6.63	--	
E_{ts}	Total Switching Loss		--	23.14	--	
R_{thJC}	Thermal resistance, junction to case	per IGBT	--	0.22	--	K/W
$T_{vj\ op}$	Temperature under switching conditions		-40	--	175[1)]	℃

[1)] $T_{vj\ op}$ > 150℃ is only allowed for operation at overload conditions. For detailed specifications please refer to AN 2018-14.

Diode

Absolute Maximum Ratings (Tc = 25°C unless otherwise noted)

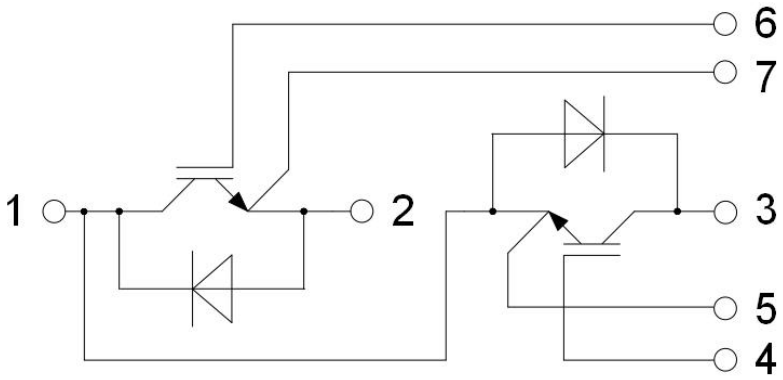
Symbol	Description	Note or test condition	Value	Unit
V_{RRM}	Repetitive peak reverse voltage	T_{vj} = 25 °C	1200	V
I_F	Continuous DC forward current		150	A
I_{FRM}	Repetitive peak forward current	t_P = 1 ms	300	A

Characteristics (Tc = 25°C unless otherwise noted)

Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
V_F	Diode Forward Voltage	I_F=150A	--	2.8	3.8	V
T_{rr}	Reverse Recovery Time	V_{CE}=600V,I_F=150A, V_{GE}=15/-5V R_g=8Ω	--	268	--	ns
I_{RRM}	Diode Peak Reverse Recovery Current		--	33	--	A
Q_{rr}	Reverse Recovery Charge		--	4.13	--	uC
E_{rec}	Reverse Recovery Energy		--	0.64	--	mJ
R_{thJC}	Thermal resistance,junction to case	per Diode	--	0.4	--	K/W
$T_{vj\ op}$	Temperature under switching conditions		-40	--	175[2)]	℃

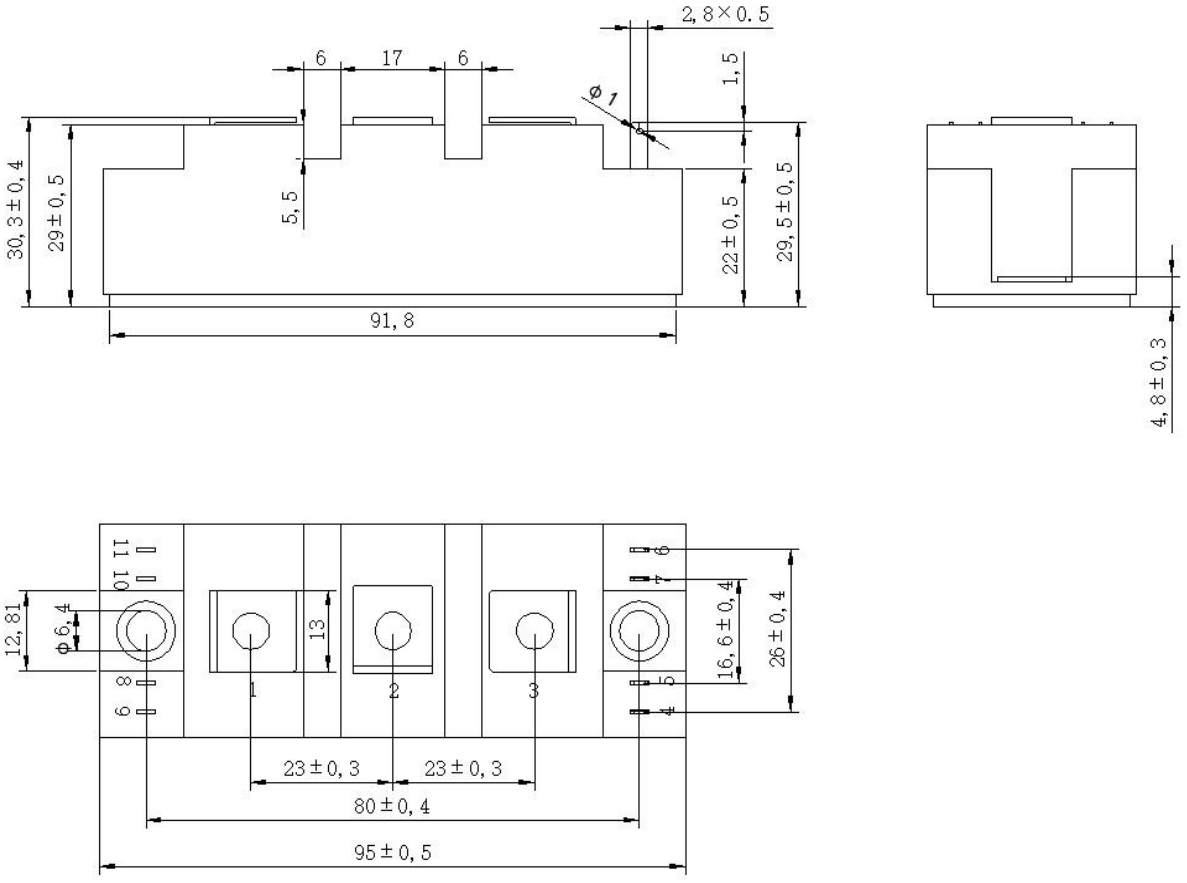
[2)] $T_{vj\ op}$ > 150℃ is only allowed for operation at overload conditions. For detailed specifications please refer to AN 2018-14.

Circuit Diagram



Package Dimensions

Dimensions in Millimeters



Revision History

Document version	Date of release	Description of changes
Rev.00	2024-11-06	Preview

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