JLHF150W120R34E6DN

L34 module with GEN6 IGBT and emitter controlled diode

RoHS

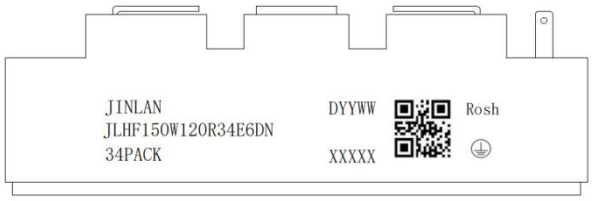
Features

- Electrical features
  - V_{CES} = 1200 V
  - IC $_{nom}$ = 150 A / I_{CRM} = 300 A
  - V_{CEsat} with positive temperature coefficient
- Mechanical features
  - Standard housing
  - 2.5 kV AC 1 min insulation
  - High creepage and clearance distances
  - Isolated base plate

L34

Typical Applications

- High frequency switching application
- Medical applications
- Motion/servo control
- UPS (Uninterruptible Power Supplies)
- Welding



JINLAN = Company Name

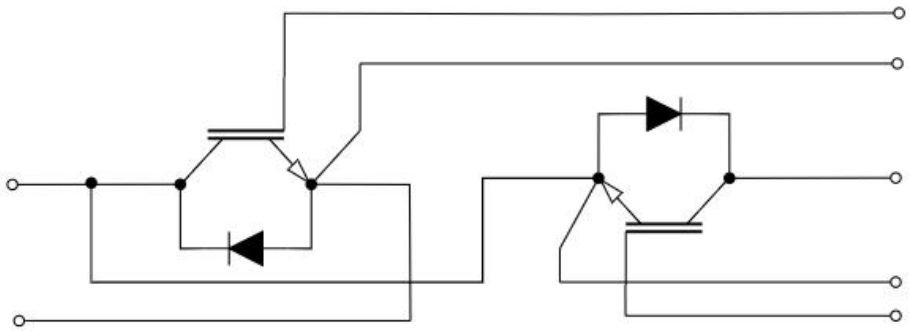
JLHF150W120R34E6DN = Specific Device Code

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			--	155	--	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, $T_{vj\ max}$ = 150°C	568	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	Tj=25°C	--	2.0	2.8	V
			Tj=150°C	--	2.4	--	
$V_{GE(TH)}$	Gate−Emitter Threshold Voltage	I_C=3mA,V_{CE}=V_{GE},T_{vj}= 25°C		4.5	--	6.5	V
I_{CES}	Collector−Emitter Cutoff Current	V_{GE} =0V,V_{CE}=1200V,T_{vj}= 25°C		--	--	1	mA
I_{GES}	Gate-Emitter Leakage Current	V_{GE} = ±20V , V_{CE} = 0 V， T_{vj} = 25°C		--	--	100	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		--	28.2	--	nF
C_{oes}	Output Capacitance			--	0.63	--	
C_{res}	Reverse Transfer Capacitance			--	0.62	--	
Q_g	Total Gate Charge	V_{CC}=960V, I_C=150A, V_{GE}=15V,T_{vj} = 25°C		--	0.89	--	uC
Q_{ge}	Gate to Emitter Charge			--	0.16	--	
Q_{gc}	Gate to Collector Charge			--	0.42	--	
$t_{d(ON)}$	Turn-on Delay Time	V_{CE}=600V,I_C=150A, V_{GE}=15/-5V, R_g=7.8Ω Inductive Load		--	19	--	ns
t_r	Rise Time			--	25	--	
$t_{d(OFF)}$	Turn-Off Delay Time			--	313	--	
t_f	Fall Time			--	15	--	
E_{on}	Turn-On Switching Loss			--	19.2	--	mJ
E_{off}	Turn-Off Switching Loss			--	6.9	--	
E_{ts}	Total Switching Loss			--	25.1	--	

R_{thJC}	Thermal resistance,junction to case	per IGBT	--	0.2	--	K/W
$T_{vj\ op}$	Temperature under switching conditions		-40	--	150[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	--	3.3	4.2	V
T_{rr}	Reverse Recovery Time	V_{CE}=600V,I_F=150A, V_{GE}=15/-5V R_g=7.8Ω	--	260	--	ns
I_{RRM}	Diode Peak Reverse Recovery Current		--	35	--	A
Q_{rr}	Reverse Recovery Charge		--	2.8	--	uC
E_{rcc}	Reverse Recovery Energy		--	2.3	--	mJ
R_{thJC}	Thermal resistance,junction to case	per Diode	--	0.45	--	K/W
$T_{vj\ op}$	Temperature under switching conditions		-40	--	150[2)]	℃

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

Typical Electrical and Thermal Characteristics

Figure 1 Output Characteristics

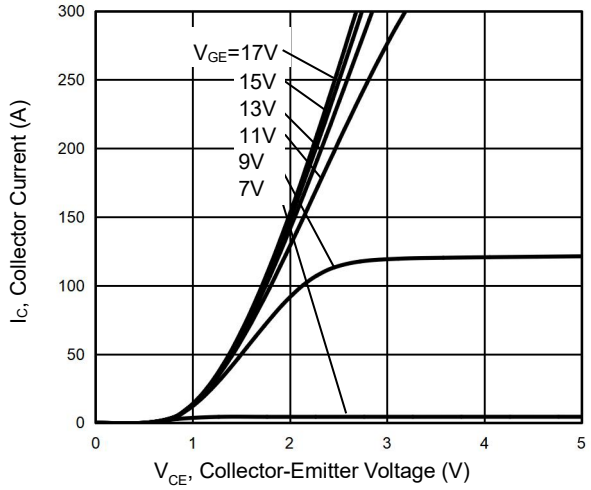


Figure 2 Transfer Characteristics

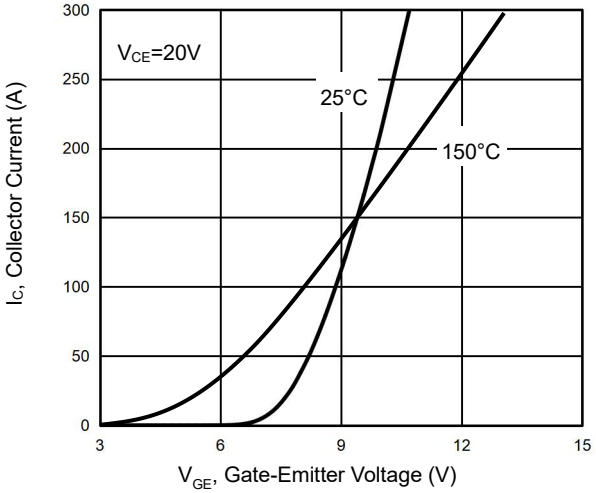


Figure 3 $V_{CE(sat)}$ vs. Case Temperature

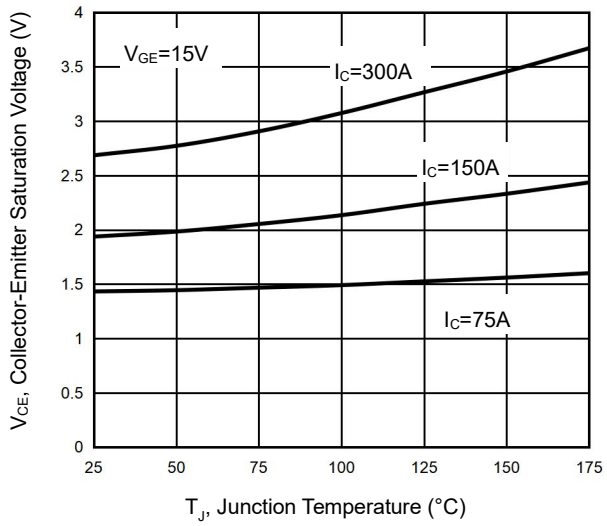


Figure 4 Saturation Voltage vs. V_{GE}

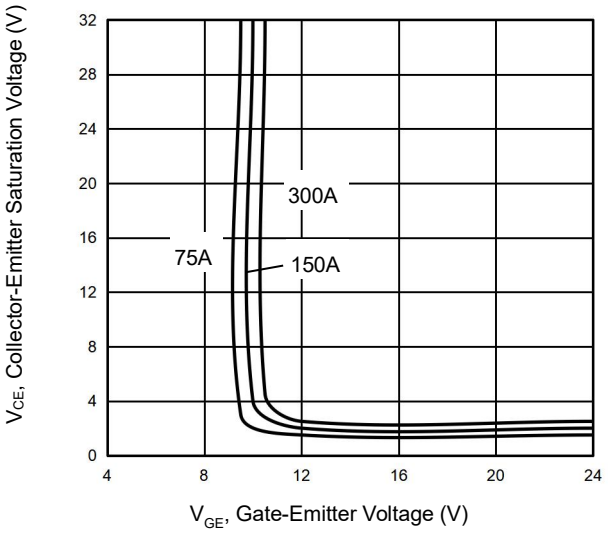


Figure 5 Capacitance Characteristics

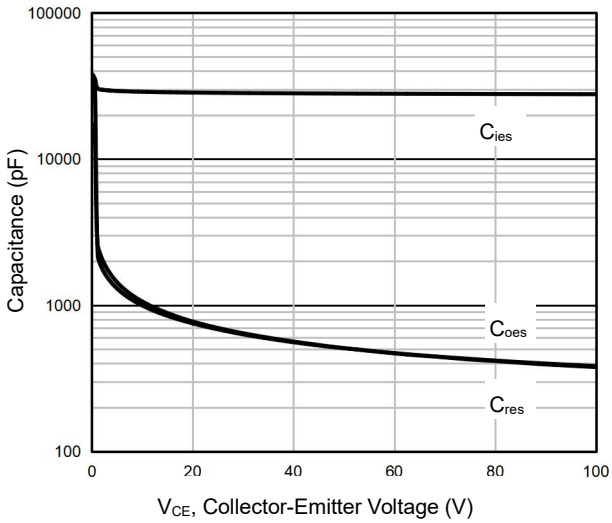
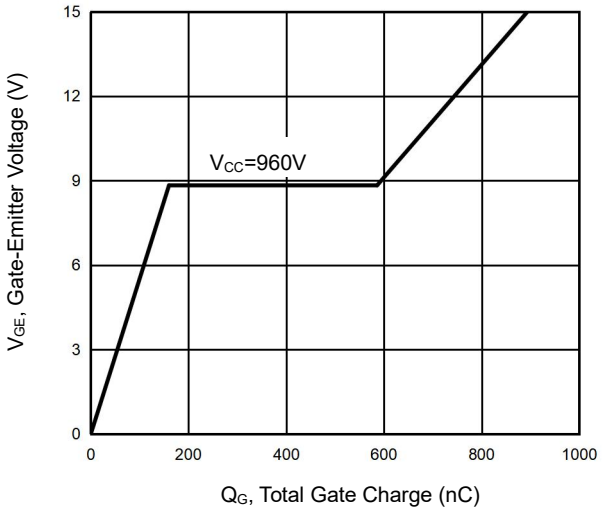


Figure 6 Gate Charge Waveform



Typical Electrical and Thermal Characteristics

Figure 7 Forward Characteristics

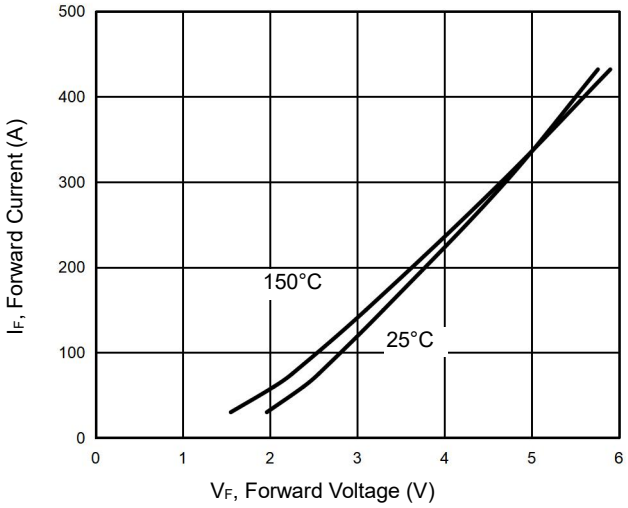


Figure 8 V_F vs. Temperature

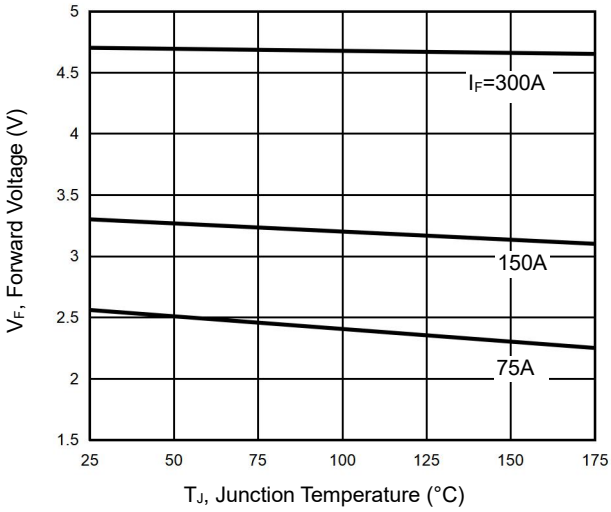


Figure 9 Gate-emitter Threshold Voltage as a Function of Junction Temperature

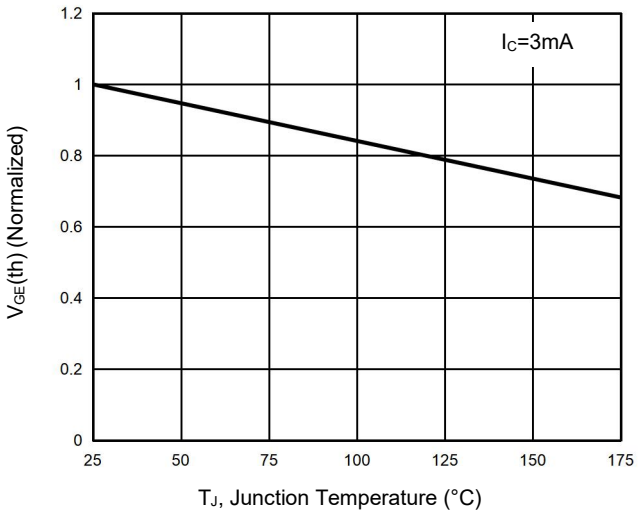
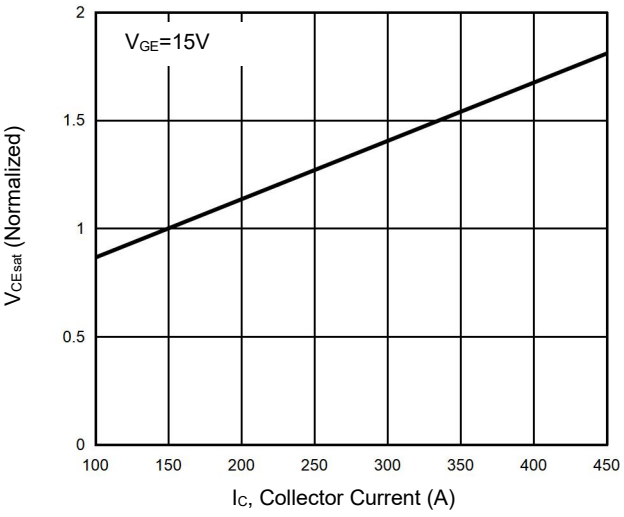
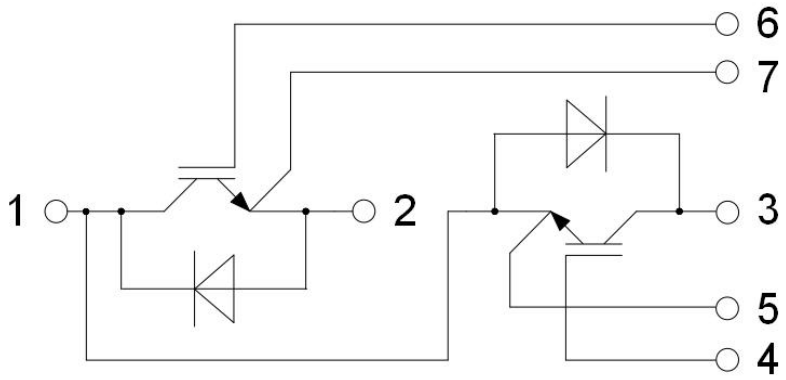


Figure 10 Typical Collector-emitter Saturation Voltage as a function of Collector Current

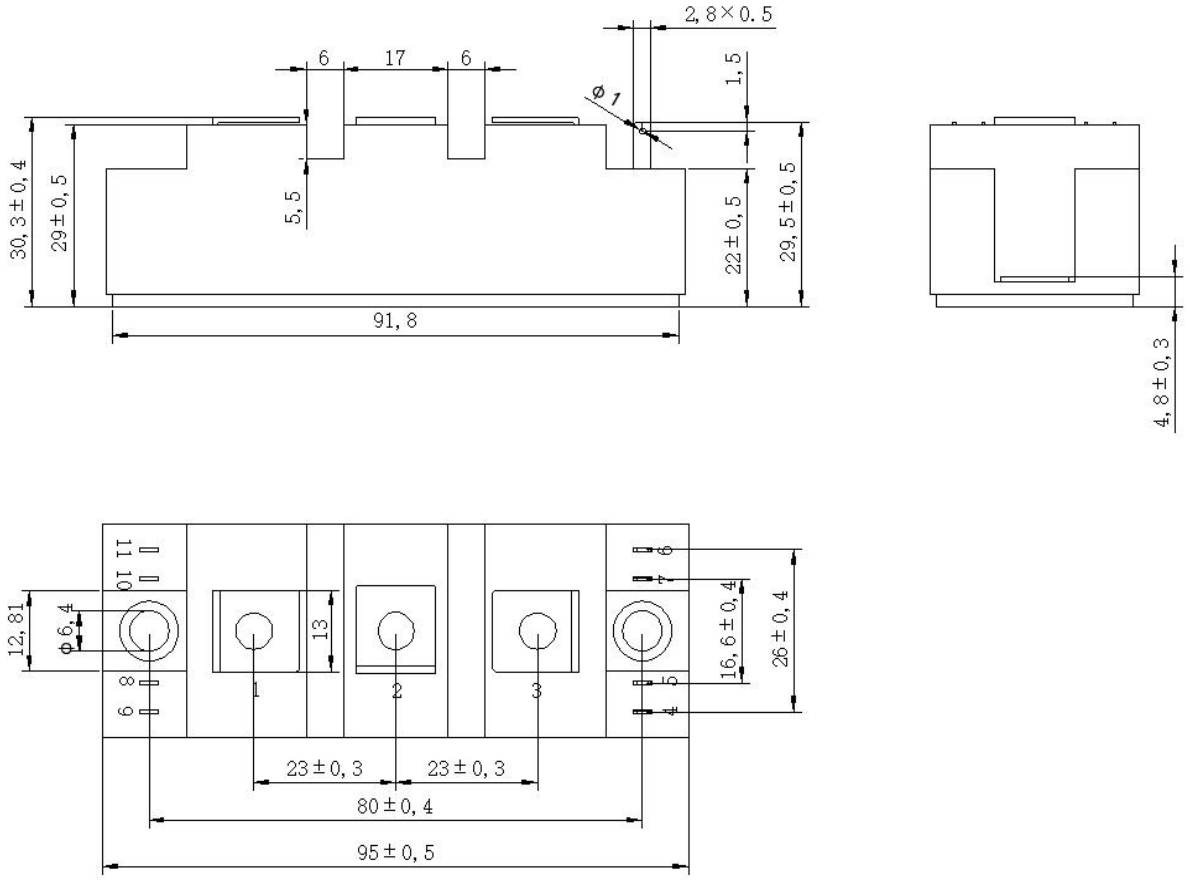


Circuit Diagram



Package Dimensions

Dimensions in Millimeters



REVISION HISTORY

Document version	Date of release	Description of changes
Rev.00	2024-08-06	Preview

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