



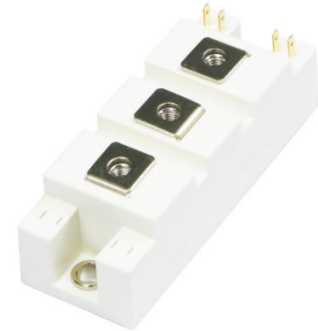
JLHF150B120R34E7DN

L34 module with GEN7 IGBT and emitter controlled diode

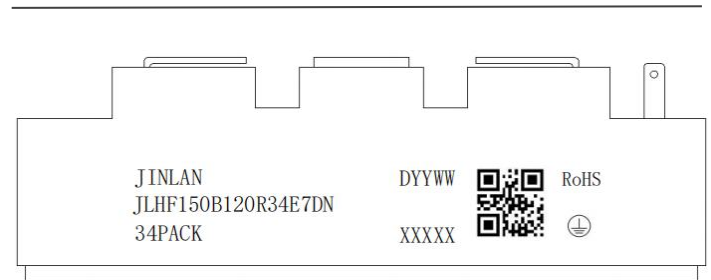
Features



- Electrical features
 - $V_{CES} = 1200\text{ V}$
 - $I_{C\text{ nom}} = 150\text{ A} / I_{CRM} = 300\text{ A}$
 - V_{CESat} with positive temperature coefficient
 - $10\mu\text{s}$ short circuit capability
- Mechanical features
 - Standard housing
 - 2.5 kV AC 1 min insulation
 - High creepage and clearance distances
 - Isolated base plate



L34



Typical Applications

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

JINLAN

= Company Name

JLHF150B120R34E7DN

= Specific Device Code

YYWW

= Year and Work Week Code

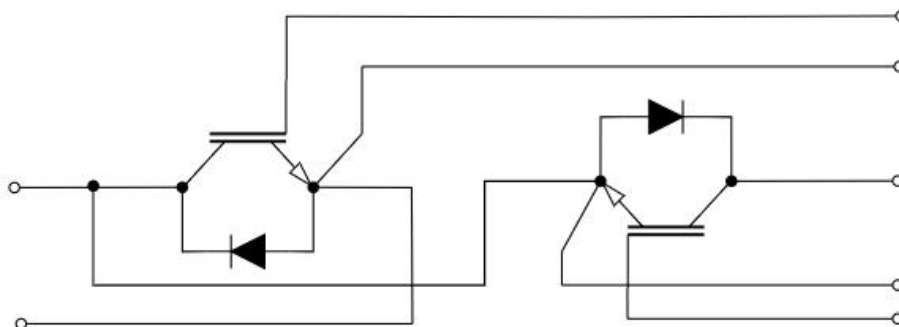
XXXXX

= 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	$T_C=25^{\circ}C$, 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 (T_c = 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 @ T _c = 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 (T_c = 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	--	1.65	2.50	V
			T _j =125°C	--	1.75	--	
			T _j =150°C	--	1.85	--	
V _{GE(TH)}	Gate-Emitter Threshold Voltage	I _C = 3 mA, V _{CE} = V _{GE}		5.0	6.0	7.0	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		--	--	100	nA
R _{Gint}	Internal Gate Resistance	T _{vj} = 25 °C		--	0.4	--	Ω
C _{ies}	Input Capacitance	V _{CE} =30V, V _{GE} =0V, f=1MHz, T _{vj} = 25°C		--	15.58	--	nF
C _{oes}	Output Capacitance			--	0.35	--	
C _{res}	Reverse Transfer Capacitance			--	0.078	--	
Q _g	Total Gate Charge	V _{CC} =960V, I _C =150A, V _{GE} =15V, T _{vj} = 25°C		--	0.73	--	uC
Q _{ge}	Gate to Emitter Charge			--	0.06	--	
Q _{gc}	Gate to Collector Charge			--	0.25	--	
t _{d(ON)}	Turn-on Delay Time	V _{CE} =600V, I _C =150A, V _{GE} =15/-5V, R _g =25Ω Inductive Load		--	180	--	ns
t _r	Rise Time			--	122	--	
t _{d(OFF)}	Turn-Off Delay Time			--	608	--	
t _f	Fall Time			--	90	--	
E _{on}	Turn-On Switching Loss			--	8.34	--	mJ



E_{off}	Turn-Off Switching Loss	$V_{GE}=15V, V_{CC}=600V, t_{SC} \leq 10\mu s, T_{vj} \leq 150^\circ C$	--	4.20	--	
E_{ts}	Total Switching Loss		--	12.54	--	
$I_{C(SC)}$	Short circuit collector current	$V_{GE}=15V, V_{CC}=600V, t_{SC} \leq 10\mu s, T_{vj} \leq 150^\circ C$	--	700	--	A
R_{thJC}	Thermal resistance, junction to case	per IGBT	--	0.22	--	K/W
$T_{vj op}$	Temperature under switching conditions		-40	--	150 ¹⁾	$^\circ C$

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

Diode

Absolute Maximum Ratings ($T_c = 25^\circ C$ unless otherwise noted)

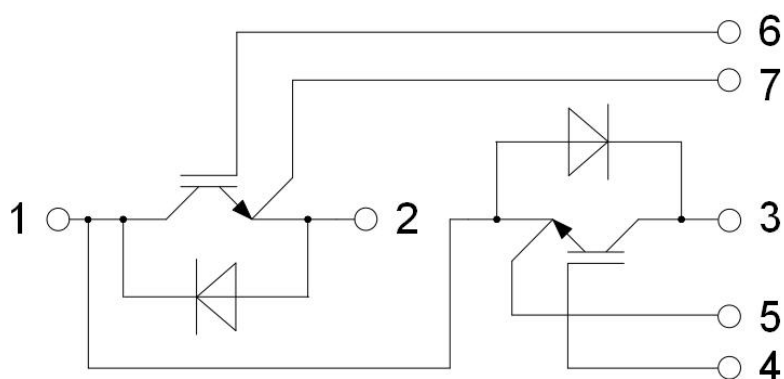
Symbol	Description	Note or test condition	Value	Unit
V_{RRM}	Repetitive peak reverse voltage	$T_{vj} = 25^\circ C$	1200	V
I_F	Continuous DC forward current		150	A
I_{FRM}	Repetitive peak forward current	$t_p = 1 ms$	300	A

Characteristics ($T_c = 25^\circ C$ unless otherwise noted)

Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
V_F	Diode Forward Voltage	$I_F=150A$	--	1.7	2.7	V
T_{rr}	Reverse Recovery Time	$V_{CE}=600V, I_F=150A,$ $V_{GE}=15/-5V$ $R_g=25\Omega$	--	192	--	ns
I_{RRM}	Diode Peak Reverse Recovery Current		--	29.7	--	A
Q_{rr}	Reverse Recovery Charge		--	1.36	--	μC
E_{rec}	Reverse Recovery Energy		--	1.35	--	mJ
R_{thJC}	Thermal resistance, junction to case	per Diode	--	0.4	--	K/W
$T_{vj op}$	Temperature under switching conditions		-40	--	150 ²⁾	$^\circ C$

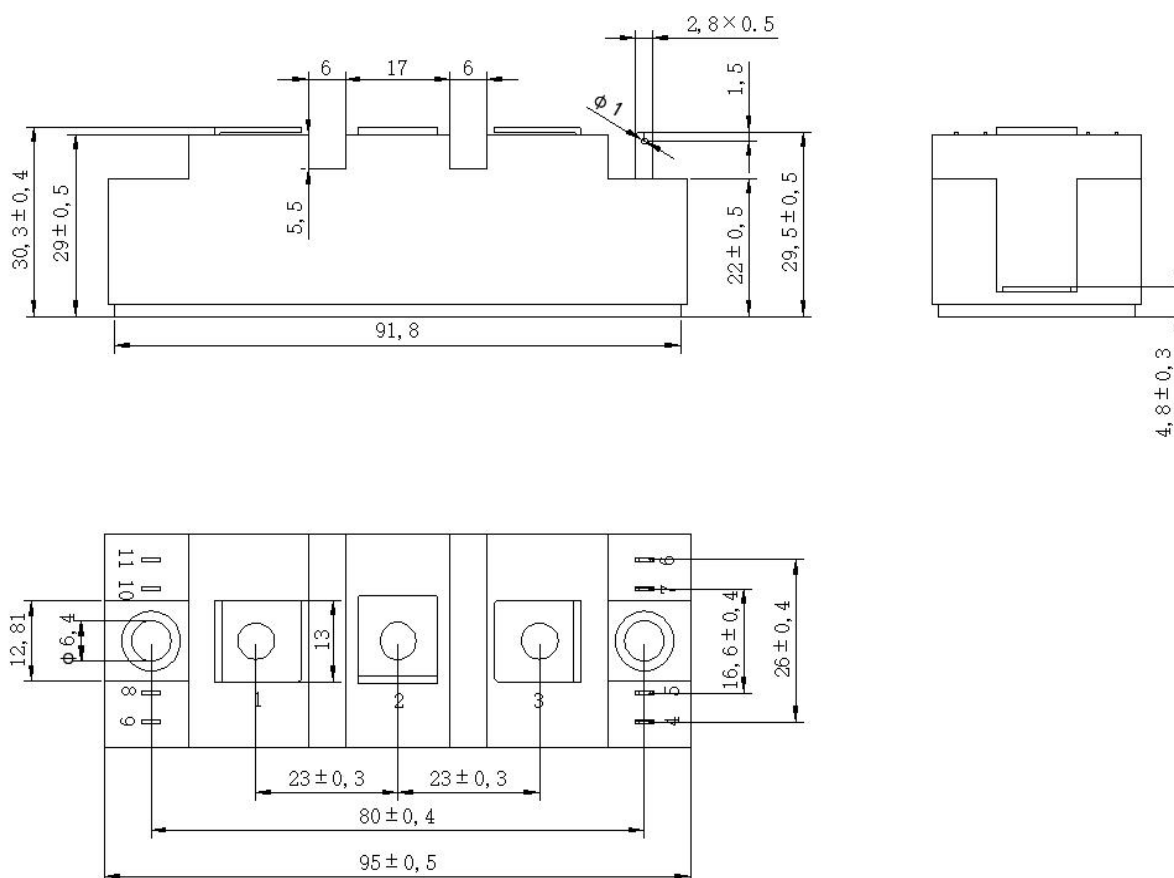
²⁾ $T_{vj op} > 150^\circ C$ is only allowed for operation at overload conditions. For detailed specifications please refer to AN 2018-14.

Circuit Diagram



Package Dimensions

Dimensions in Millimeters





REVISION HISTORY

Document version	Date of release	Description of changes
Rev.00	2024-10-25	Preview

**Attention:**

- Any and all Jinlan power products described or contained herein do not have specifications that can handle applications that require extremely high levels of reliability, such as life-support systems, aircraft's control systems, or other applications whose failure can be reasonably expected to result in serious physical and/or material damage. Consult with your Jinlan Power Semiconductor representative nearest you before using any Jinlan power products described or contained herein in such applications.
- Jinlan Power Semiconductor assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all Jinlan power modules described or contained herein.
- Specifications of any and all Jinlan power products described or contained herein stipulate the performance, characteristics, and functions of the described products in the independent state, and are not guarantees of the performance, characteristics, and functions of the described products as mounted in the customer's products or equipment. To verify symptoms and states that cannot be evaluated in an independent device, the customer should always evaluate and test devices mounted in the customer's products or equipment.
- Jinlan Power Semiconductor (Wuxi).co.,LTD. strives to supply high-quality high-reliability products. However, any and all semiconductor products fail with some probability. It is possible that these probabilistic failures could give rise to accidents or events that could endanger human lives, that could give rise to smoke or fire, or that could cause damage to other property. When designing equipment, adopt safety measures so that these kinds of accidents or events cannot occur. Such measures include but are not limited to protective circuits and error prevention circuits for safe design, redundant design, and structural design.
- In the event that any or all Jinlan power products (including technical data, services) described or contained herein are controlled under any of applicable local export control laws and regulations, such products must not be exported without obtaining the export license from the authorities concerned in accordance with the above law.
- No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, or any information storage or retrieval system, or otherwise, without the prior written permission of Jinlan Power Semiconductor (Wuxi).co.,LTD.
- Information (including circuit diagrams and circuit parameters) herein is for example only; it is not guaranteed for volume production. Jinlan Power Semiconductor believes information herein is accurate and reliable, but no guarantees are made or implied regarding its use or any infringements of intellectual property rights or other rights of third parties.
- Any and all information described or contained herein are subject to change without notice due to product/technology improvement, etc. When designing equipment, refer to the "Delivery Specification" for the Jinlan power product that you intend to use.
- This catalog provides information as of Oct.2024. specifications and information herein are subject to change without notice.