



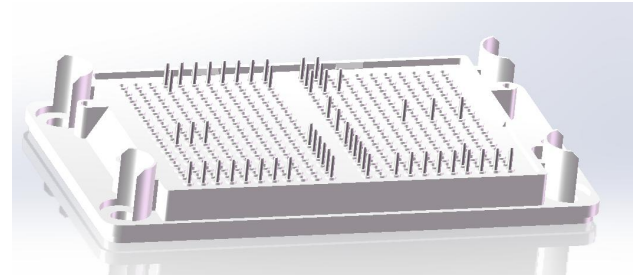
JL3I400V100SE3E7SN

I-NPC Inverter Module with 1200V NCE Gen7 Trench Stop IGBTs



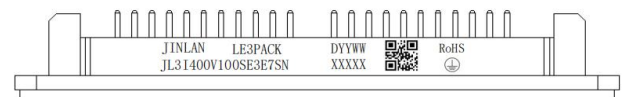
Features

- 1050V Trench Stop IGBTs
- Vcesat with positive Temperature Coefficient
- Low Switching Losses
- Low Inductive Design
- Integrated NTC



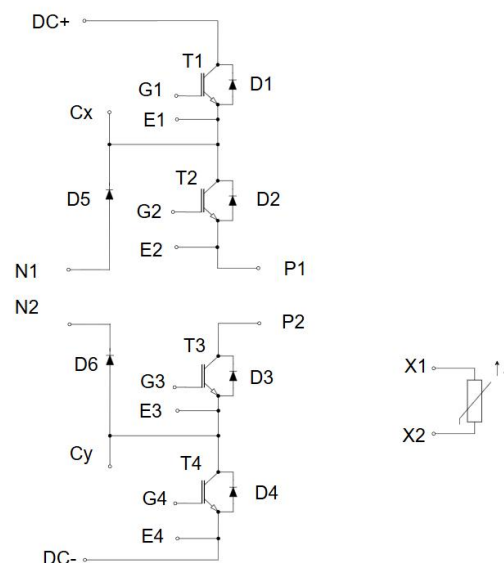
LE3 Pack

MARKING DIAGRAM



JINLAN	= Company Name
JL3I400V100SE3E7SN	= Specific Device Code
YYWW	= Year and Work Week Code
XXXXX	= Serial Number
QR code	= Custom Assembly Information

Description





Package Insulation coordination

Parameter	Symbol	Note or test condition	Values	Unit
Isolation test voltage	V_{ISOL}	RMS, f=50Hz, t=60s	4	kV
Creepage distance	d_{creep}	terminal to heatsink	11.5	mm
Creepage distance	d_{creep}	terminal to terminal	6.8	mm
Clearance	d_{clear}	terminal to heatsink	9.4	mm
Clearance	d_{clear}	terminal to terminal	5.5	mm
Comparative tracking index (electrical)	CTI		≥ 500	

Package Characteristic values

Parameter	Symbol	Note or test condition		Values			Unit
				Min.	Typ.	Max.	
Storage Temperature Range	T_{STG}			-40	--	125	°C
Mounting torque for module mounting	M	-Mounting according to valid application note	M5, Screw	3	--	5	Nm
Flatness of base plate						0.3	mm
Weight	G				250		g

**IGBT (T1,T2,T3,T4)****Absolute Maximum Ratings** ($T_c = 25^\circ\text{C}$ unless otherwise noted)

Symbol	Description	Value	Unit
V_{CES}	Collector-Emitter Voltage	1200	V
V_{GES}	Gate-Emitter Voltage	± 20	V
I_{CDC}	Continuous Collector Current @ $T_c = 80^\circ\text{C}$ ($T_{JMAX} = 175^\circ\text{C}$)	400	A
I_{CM}	Pulsed Collector Current, t_p limited by $T_{vj\max}$	800	A
P_D	Power Dissipation @ $T_c = 25^\circ\text{C}$ ($T_{JMAX} = 175^\circ\text{C}$)	1100	W
	Power Dissipation @ $T_c = 100^\circ\text{C}$ ($T_{JMAX} = 175^\circ\text{C}$)	550	W

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

Symbol	Parameter	Test Condition	Min	Typ	Max	Unit
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$V_{GE} = 15\text{ V}, I_C = 400\text{ A}$				V
		$T_J = 25^\circ\text{C}$	--	1.50	2.20	
		$T_J = 150^\circ\text{C}$	--	1.80	--	
I_{CES}	Collector-Emitter Cutoff Current	$V_{GE} = 0\text{ V}, V_{CE} = 1200\text{ V}$	--	--	800	μA
I_{GES}	Gate-Emitter Leakage Current	$V_{GE} = \pm 20\text{ V}, V_{CE} = 0\text{ V}$	--	--	400	nA
$V_{GE(TH)}$	Gate-Emitter Threshold Voltage	$V_{GE} = V_{CE}, I_C = 15\text{ mA}$	4.0	5.0	6.0	V
R_{Gint}	Internal Gate Resistance	$T_{vj} = 25^\circ\text{C}$	--	1.45	--	Ω
C_{iss}	Input Capacitance	$V_{CE} = 25\text{ V}, V_{GE} = 0\text{ V}, f = 100\text{ kHz}$	--	38.7	--	nF
C_{oss}	Output Capacitance		--	2.43	--	
C_{rss}	Reverse Transfer Capacitance		--	0.082	--	
Q_g	Total Gate Charge	$V_{GE} = \pm 15\text{ V}$	--	1.10	--	μC
$t_{d(on)}$	Turn-On Delay Time	$V_{CE}=600\text{ V}, I_C = 200\text{ A}$ $V_{GE} = \pm 15\text{ V}, R_{Gon} = 25\Omega, R_{Goff} = 25\Omega$ $T_{vj} = 25^\circ\text{C}$	--	0.68	--	μs
t_r	Rise Time		--	0.113	--	
$t_{d(off)}$	Turn-off Delay Time		--	1.793	--	
t_f	Fall Time		--	0.146	--	
E_{on}	Turn-On Switching Loss per Pulse		--	44.15	--	mJ
E_{off}	Turn Off Switching Loss per Pulse		--	35.37	--	
$t_{d(on)}$	Turn-On Delay Time	$V_{CE}=600\text{ V}, I_C = 200\text{ A}$ $V_{GE} = \pm 15\text{ V}, R_{Gon} = 25\Omega, R_{Goff} = 25\Omega$ $T_{vj} = 150^\circ\text{C}$	--	0.64	--	μs
t_r	Rise Time		--	0.16	--	
$t_{d(off)}$	Turn-off Delay Time		--	1.933	--	
t_f	Fall Time		--	0.146	--	
E_{on}	Turn-on Switching Loss per Pulse		--	28.15	--	mJ
E_{off}	Turn Off Switching Loss per Pulse		--	32.21	--	
R_{thJC}	Thermal Resistance – Chip-to-Case		--	0.135	--	K/W
$T_{vj\text{ op}}$		Temperature under switching conditions	-40		175 ¹⁾	$^\circ\text{C}$

¹⁾ $T_{vj\text{ op}} > 150^\circ\text{C}$ is only allowed for operation at overload conditions.

**Diode (D1,D2,D3,D4,D5,D6)****Absolute Maximum Ratings** (T_c = 25°C unless otherwise noted)

Symbol	Description	Value	Unit
V _{RRM}	Repetitive Peak Reverse Voltage	1200	V
I _F	Diode Continuous Forward Current	200	A
I _{FM}	Diode Maximum Forward Current t _p =1ms	400	A

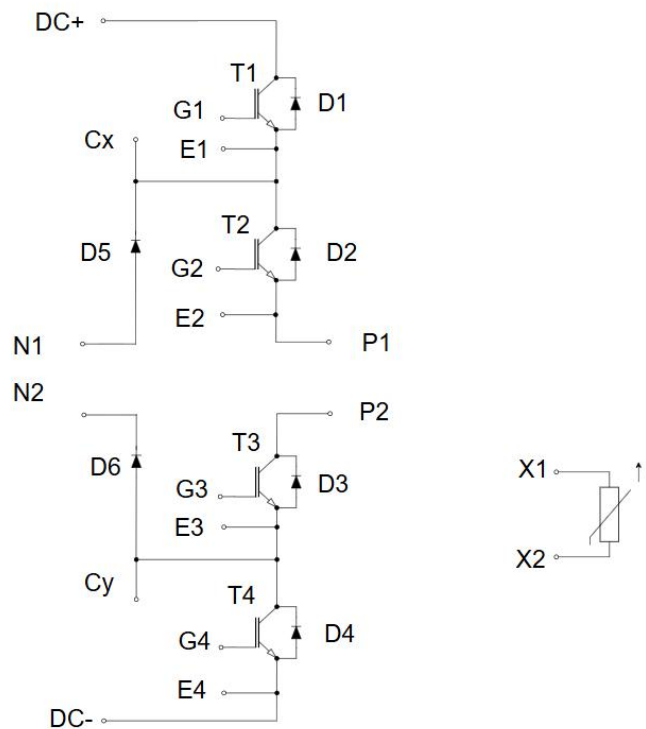
Characteristics (T_c=25°C unless otherwise noted)

V _F	Diode Forward Voltage	I _F = 400 A, V _{GE} = 0 V	T _J = 25°C	--	1.5	2.3	V
			T _J = 150°C	--	1.3	--	
Q _{rr}	Reverse Recovery Charge	T _J = 25°C V _R = 600V, I _F = 400A V _{GE} = ±15V, R _{Gon} = 25Ω, R _{Goff} = 25Ω	--	--	8.1	--	μC
I _{RRM}	Peak Reverse Recovery Current		--	--	174	--	A
E _{REC}	Reverse Recovery Energy		--	--	2.17	--	mJ
Q _{rr}	Reverse Recovery Charge	T _J = 150°C V _R = 600V, I _F = 400A V _{GE} = ±15V, R _{Gon} = 25Ω, R _{Goff} = 25Ω	--	--	18.5	--	μC
I _{RRM}	Peak Reverse Recovery Current		--	--	226	--	A
E _{REC}	Reverse Recovery Energy		--	--	5.9	--	mJ
R _{thJC}	Thermal Resistance – Chip-to-Case		--	--	0.186	--	K/W
T _{vj op}		Temperature under switching conditions	-40			175 ²⁾	°C

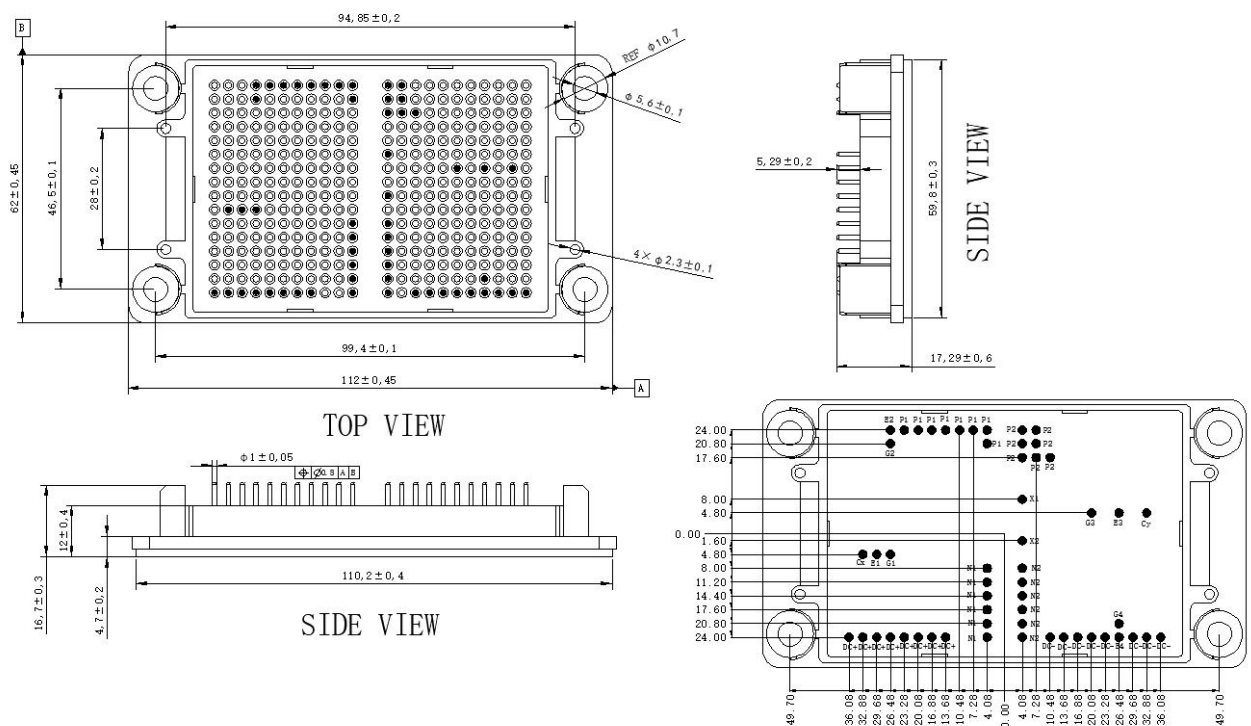
²⁾T_{vj op} > 150°C is only allowed for operation at overload conditions.



CIRCUIT DIAGRAM



PACKAGE DIMENSIONS





REVISION HISTORY

Document version	Date of release	Description of changes
Rev.00	2025-3-13	Preview



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