



JLBR400B120R62E7DN

62 mm module with TRENCHSTOP IGBT7 and emitter controlled 7 diode

Features

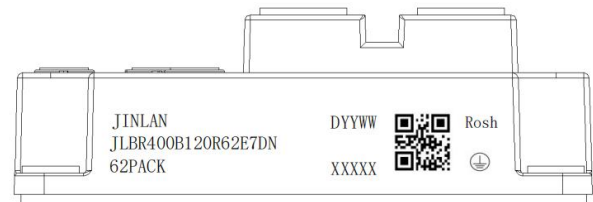
- VCE(sat) with positive temperature coefficient
- Low inductance case
- Fast & soft reverse recovery anti-parallel FWD
- 10 μ s short circuit capability
- Low switching losses
- Isolated copper baseplate using DBC technology
- Standard housing



62 Pack

Typical Applications

- Switching mode power supply
- Inductive heating
- Electronic welder



JINLAN

= Company Name

JLBR400B120R62E7DN

= Specific Device Code

YYWW

= Year and Work Week Code

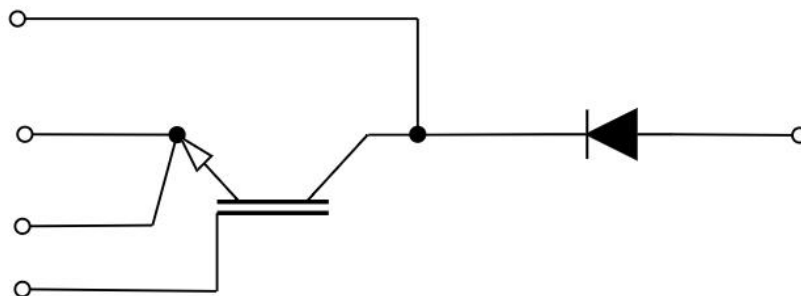
XXXXX

= Serial Number

QR code

= Custom Assembly

Description





Package Insulation coordination

Parameter	Symbol	Note or test condition	Values	Unit
Isolation test voltage	V_{ISOL}	RMS,f=50Hz,t=60s	2.5	kV
Internal isolation		basic insulation(class 1,IEC 61140)	Al_2O_3	
Creepage distance	d_{creep}	terminal to heatsink	20	mm
Clearance	d_{clear}	terminal to heatsink	11	mm
Comparative tracking index (electrical)	CTI		≥ 200	
RTI Elec.	RTI	housing	≥ 175	$^{\circ}C$

Package Characteristic values

Parameter	Symbol	Note or test condition	Values			Unit
			Min.	Typ.	Max.	
Storage Temperature Range	T_{STG}		-40		150	$^{\circ}C$
Mounting torque for module mounting	M	Terminal Connection Torque, Screw M4	1.1	--	2.0	Nm
		Terminal Connection Torque, Screw M6	2.5		5.0	
		Mounting Torque, Screw M6	3.0		5.0	
Weight	G		--	300	--	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 DC collector current	T _{vj max} = 175 °C	T _C = 90 °C	400	A
I _{CRM}	Repetitive peak collector current	t _p limited by T _{vj op}		800	A
P _{tot}	Total power dissipation	T _C = 25°C, T _{vj max} = 175°C		2272	W
V _{GES}	Gate-emitter peak voltage			±20	V

Characteristics (T_C = 25°C unless otherwise noted)

Symbol	Parameter	Test Condition		Value			Unit
				Min	Typ	Max	
V _{CE(sat)}	Collector-Emitter Saturation Voltage	I _C = 400 A, V _{GE} = 15 V	T _{vj} = 25 °C	--	2.95	4.5	V
			T _{vj} = 150 °C	--	4.6	--	
V _{GE(TH)}	Gate-Emitter Threshold Voltage	V _{GE} = V _{CE} , I _C = 16 mA, T _{vj} = 25°C		4.5	5.5	5.5	V
I _{CES}	Collector-Emitter Cutoff Current	V _{GE} = 0 V, V _{CE} = 1200V, T _{vj} = 25°C		--	--	5.0	mA
I _{GES}	Gate-Emitter Leakage Current	V _{GE} = 20V, V _{CE} = 0 V, T _{vj} = 25°C		--	--	400	nA
R _{Gint}	Internal Gate Resistance	T _{vj} = 25 °C		--	0.5	--	Ω
C _{ies}	Input Capacitance	f = 100 kHz, T _{vj} = 25 °C, V _{CE} = 25 V, V _{GE} = 0 V		--	74.0	--	nF
C _{oes}	Output Capacitance			--	1.58	--	nF
C _{res}	Reverse Transfer Capacitance			--	0.3	--	nF
Q _G	Gate Charge	V _{GE} = ±15 V, V _{CC} = 600 V		--	2.38	--	μC
t _{d(on)}	Turn-On Delay Time	I _C = 400 A, V _{CC} = 600 V, V _{GE} = 15 /-5V, R _G = 1.6 Ω	T _{vj} = 25 °C	--	160	--	ns
			T _{vj} = 150 °C	--	176	--	
t _r	Rise Time	I _C = 400 A, V _{CC} = 600 V, V _{GE} = 15 /-5V, R _G = 1.6 Ω	T _{vj} = 25 °C	--	51	--	ns
			T _{vj} = 150 °C	--	58	--	
t _{d(off)}	Turn-off Delay Time	I _C = 400 A, V _{CC} = 600 V, V _{GE} = 15 /-5V, R _{Goff} = 1.6 Ω	T _{vj} = 25 °C	--	474	--	ns
			T _{vj} = 150 °C	--	526	--	
t _f	Fall Time	I _C = 400 A, V _{CC} = 600 V, V _{GE} = 15 /-5V, R _G = 1.6 Ω	T _{vj} = 25 °C	--	32	--	ns
			T _{vj} = 150 °C	--	39	--	
E _{on}	Turn-On Switching Loss per Pulse	I _C = 400 A, V _{CC} = 600 V, V _{GE} = 15 /-5V, R _G = 1.6 Ω (T _{vj max} = 175 °C)	T _{vj} = 25 °C	--	17.8	--	mJ
			T _{vj} = 150 °C	--	23.2	--	
E _{off}	Turn Off Switching Loss per Pulse	I _C = 400 A, V _{CC} = 600 V, V _{GE} = 15 /-5V, R _G = 1.6 Ω (T _{vj max} = 175 °C)	T _{vj} = 25 °C	--	7.1	--	mJ
			T _{vj} = 150 °C	--	13.9	--	
I _{SC}	SC Data	V _{GE} ≤ 15 V, V _{CC} = 800 V, V _{CEmax} = V _{CES} - L _{sCE} · di/dt	t _p ≤ 10 μs, T _{vj} = 150 °C	--	2880	--	A
R _{thJC}	Thermal resistance, junction to case	per IGBT		--	0.06	--	K/W



$T_{vj\ op}$	Temperature under switching conditions		-40	--	150 ¹⁾	°C
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¹⁾ $T_{vj\ op} > 150^{\circ}\text{C}$ is only allowed for operation at overload conditions. For detailed specifications please refer to AN 2018-14.

Diodes

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

Symbol	Description	Note or test condition	Value	Unit
V_{RRM}	Repetitive peak reverse voltage	$T_{vj} = 25^{\circ}\text{C}$	1200	V
I_F	Continuous DC forward current		400	A
I_{FRM}	Repetitive peak forward current	$t_P = 1\ \text{ms}$	800	A

Characteristics (Tc=25°C unless otherwise noted)

Symbol	Parameter	Test Condition		Value			Unit
				Min	Typ	Max	
V _F	Diode Forward Voltage	I _F =400 A, V _{GE} = 0 V	T _{vj} = 25 °C	--	1.60	2.40	V
			T _{vj} = 150 °C	--	1.55	--	
Q _r	Recovered Charge	I _C = 400 A, V _{CC} = 600 V, V _{GE} = 15 /-5V, R _G = 1.6 Ω (T _{vj max} = 175 °C)	T _{vj} = 25 °C	--	7.3	--	μC
			T _{vj} = 150 °C	--	18.2	--	
I _{RM}	Peak Reverse Recovery Current	I _C = 400 A, V _{CC} = 600 V, V _{GE} = 15 /-5V, R _G = 1.6 Ω (T _{vj max} = 175 °C)	T _{vj} = 25 °C	--	89.1	--	A
			T _{vj} = 150 °C	--	97.1	--	
E _{rec}	Reverse recovery energy	I _C = 400 A, V _{CC} = 600 V, V _{GE} = 15 /-5V, R _G = 1.6 Ω (T _{vj max} = 175 °C)	T _{vj} = 25 °C	--	7.02	--	mJ
			T _{vj} = 150 °C	--	17.5	--	
R _{thJC}	Thermal resistance, junction to case	per diode		--	0.077	--	K/W
T _{vj op}	Temperature under switching conditions			-40	--	150 ²⁾	°C

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

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REVISION HISTORY

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Rev.00	2024-07-26	Preview



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