



Vincotech

10-PG12ORA060CD-LJ58I18T

datasheet

fastPACK 1 SiC

1200 V / 60 A

Topology features

- Temperature sensor
- Single-phase non-controlled rectifier

Component features

- No diode recovery losses
- Very fast switching

Housing features

- Base isolation: Al_2O_3
- Convex shaped substrate for superior thermal contact
- Thermo-mechanical push-and-pull force relief
- Press-fit pin
- Reliable cold welding connection

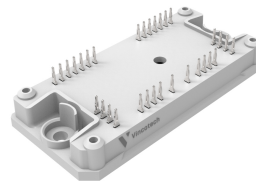
Target applications

- Charging stations

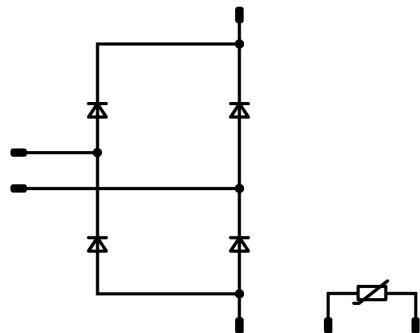
Types

- 10-PG12ORA060CD-LJ58I18T

flow 1 12 mm housing



Schematic





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Maximum Ratings

$T_j = 25\text{ °C}$, unless otherwise specified

Parameter	Symbol	Conditions	Value	Unit
Rectifier Diode				
Peak repetitive reverse voltage	V_{RRM}		1200	V
Forward current (DC current)	I_F	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	67	A
Repetitive peak forward current	I_{FRM}	t_p limited by T_{jmax}	273	A
Surge (non-repetitive) forward current	I_{FSM}	Single Half Sine Wave, $t_p = 10\text{ ms}$ $T_j = 25\text{ °C}$	390	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	151	W
Maximum junction temperature	T_{jmax}		175	°C

Module Properties

Thermal Properties

Storage temperature	T_{stg}		-40...+125	°C
Operation temperature under switching condition	T_{jop}		-40...+($T_{jmax} - 25$)	°C

Isolation Properties

Isolation voltage	V_{isol}	DC Test Voltage* $t_p = 2\text{ s}$	6000	V
Isolation voltage	V_{isol}	AC Voltage $t_p = 1\text{ min}$	2500	V
Creepage distance			>12,7	mm
Clearance			8,38	mm
Comparative Tracking Index	CTI		≥ 600	

*100 % tested in production



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Characteristic Values

Parameter	Symbol	Conditions						Values			Unit
			V_{GE} [V] V_{GS} [V]	V_{CE} [V] V_{DS} [V] V_F [V]	I_C [A] I_D [A] I_F [A]	T_j [°C]		Min	Typ	Max	

Rectifier Diode

Static

Forward voltage	V_F				60	25 125 150		1,5 1,86 2,01	1,8 ⁽¹⁾		V
Reverse leakage current	I_R	$V_i = 1200$ V				25		105	600		µA

Thermal

Thermal resistance junction to sink ⁽²⁾	$R_{th(j-s)}$	$\lambda_{paste} = 3,4$ W/mK (PSX)						0,63			K/W
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Thermistor

Static

Rated resistance	R					25		22			kΩ
Deviation of R100	$\Delta_{R/R}$	$R_{100} = 1484$ Ω				100	-5		5		%
Power dissipation	P					25		130			mW
Power dissipation constant	d					25		1,5			mW/K
B-value	$B_{(25/50)}$	Tol. ± 1 %						3962			K
B-value	$B_{(25/100)}$	Tol. ± 1 %						4000			K
Vincotech Thermistor Reference									I		

⁽¹⁾ Value at chip level

⁽²⁾ Only valid with pre-applied Vincotech thermal interface material.



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Rectifier Diode Characteristics

figure 1. FWD

Typical forward characteristics

$$I_F = f(V_F)$$

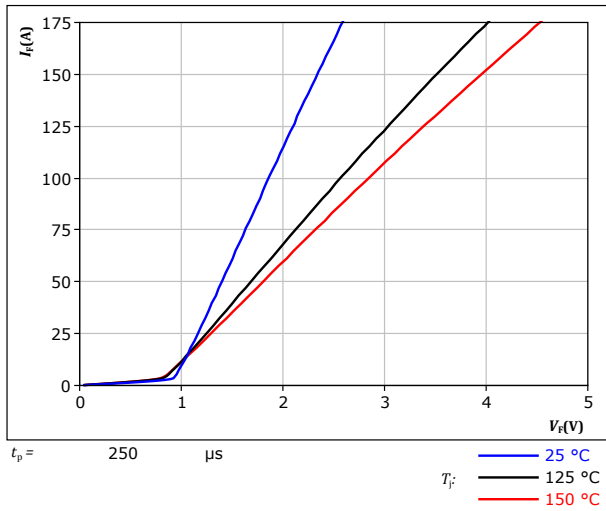
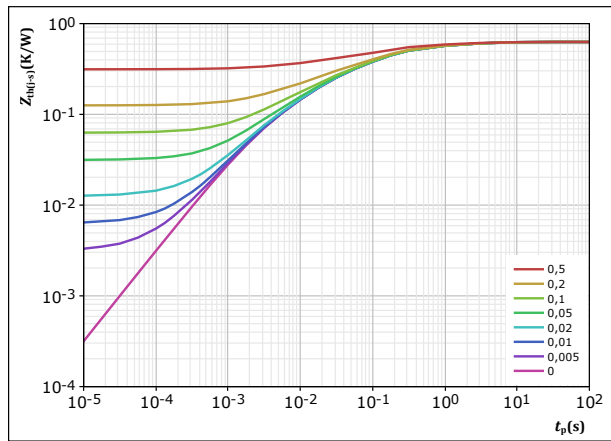


figure 2. FWD

Transient thermal impedance as a function of pulse width

$$Z_{th(j-s)} = f(t_p)$$



$D =$	t_p / T
$R_{th(j-s)} =$	0,628 K/W
FWD thermal model values	
R (K/W)	τ (s)
4,54E-02	3,92E+00
1,11E-01	6,33E-01
2,75E-01	1,07E-01
1,49E-01	1,49E-02
4,71E-02	2,49E-03



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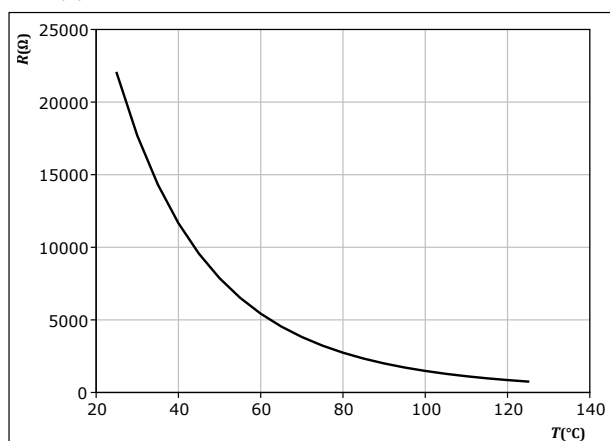
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Thermistor Characteristics

figure 3. Thermistor

Typical NTC characteristic as function of temperature

$$R_T = f(T)$$






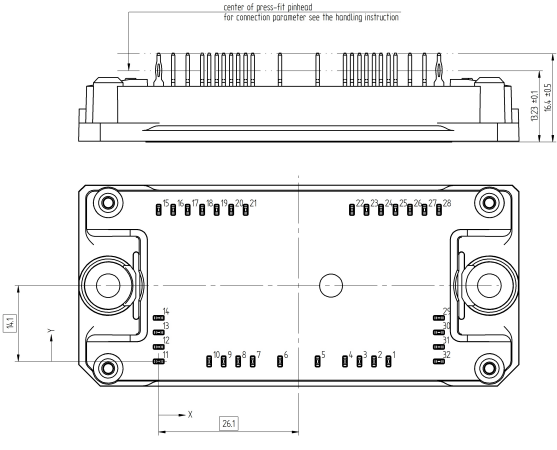
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Ordering Code	
Version	Ordering Code
Without thermal paste	10-PG12ORA060CD-LJ58I18T
With thermal paste (5,2 W/mK, PTM6000HV)	10-PG12ORA060CD-LJ58I18T-/7/
With thermal paste (3,4 W/mK, PSX-P7)	10-PG12ORA060CD-LJ58I18T-/3/

Marking						
	Text	Name	Date code	UL & VIN	Lot	Serial
		NN-NNNNNNNNNNNNNN- TTTTTV	WWYY	UL VIN	LLLLL	SSSS
Datamatrix	Type&Ver	Lot number	Serial	Date code		
	TTTTTV	LLLLL	SSSS	WWYY		

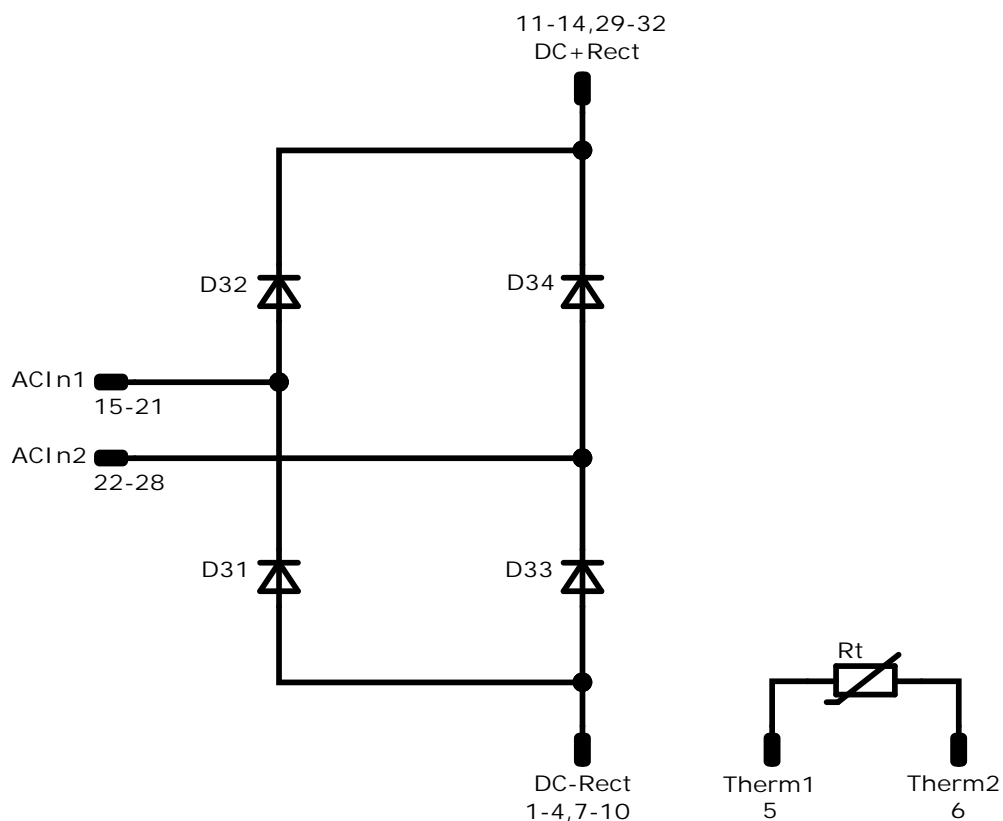
Outline				
Pin table [mm]				
Pin	X	Y	Function	
1	42,8	0	DC-Rect	
2	40,1	0	DC-Rect	
3	37,4	0	DC-Rect	
4	34,7	0	DC-Rect	
5	29,6	0	Therm1	
6	22,6	0	Therm2	
7	17,5	0	DC-Rect	
8	14,8	0	DC-Rect	
9	12,1	0	DC-Rect	
10	9,4	0	DC-Rect	
11	0	0	DC+Rect	
12	0	2,7	DC+Rect	
13	0	5,4	DC+Rect	
14	0	8,1	DC+Rect	
15	0	28,2	ACin1	
16	2,7	28,2	ACin1	
17	5,4	28,2	ACin1	
18	8,1	28,2	ACin1	
19	10,8	28,2	ACin1	
20	13,5	28,2	ACin1	
21	16,2	28,2	ACin1	
22	36	28,2	ACin2	
23	38,7	28,2	ACin2	
24	41,4	28,2	ACin2	
25	44,1	28,2	ACin2	
26	46,8	28,2	ACin2	
27	49,5	28,2	ACin2	
28	52,2	28,2	ACin2	
29	52,2	8,1	DC+Rect	
30	52,2	5,4	DC+Rect	
31	52,2	2,7	DC+Rect	
32	52,2	0	DC+Rect	



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Pinout



Identification

ID	Component	Voltage	Current	Function	Comment
D31, D32, D33, D34	FWD	1200 V	60 A	Rectifier Diode	
Rt	Thermistor			Thermistor	



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Packaging instruction				
Standard packaging quantity (SPQ) 100	>SPQ	Standard	<SPQ	Sample

Handling instruction
Handling instructions for <i>flow 1</i> packages see vincotech.com website.

Package data
Package data for <i>flow 1</i> packages see vincotech.com website.

Vincotech thermistor reference
See Vincotech thermistor reference table at vincotech.com website.

UL recognition and file number
This device is certified according to UL 1557 standard, UL file number E192116. For more information see vincotech.com website.



Document No.:	Date:	Modification:	Pages
10-PG12ORA060CD-LJ58I18T-D1-14	20 Jan. 2023		

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