



fastPACK E1 SiC

1200 V / 20 mΩ

Topology features

- Kelvin Emitter for improved switching performance
- Open Emitter configuration
- Temperature sensor

Component features

- High Blocking Voltage with low drain source on state resistance
- High speed SiC-MOSFET technology
- Resistant to Latch-up

Housing features

- Base isolation: Al₂O₃
- Convex shaped substrate for superior thermal contact
- Compact housing
- CTI600 housing material
- Thermo-mechanical push-and-pull force relief
- Press-fit pin
- Reliable cold welding connection

Target applications

- Charging Stations
- Power Supply
- UPS
- Welding & Cutting

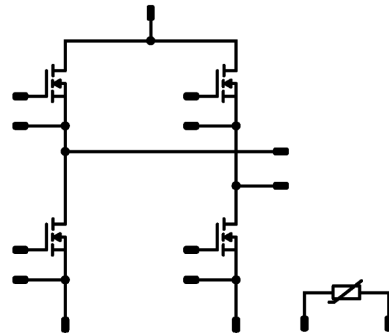
Types

- 10-EZ124PA020MS-LQ18F78T

flow E1 12 mm housing



Schematic





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10-EZ124PA020MS-LQ18F78T
target datasheet

Maximum Ratings

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

Parameter	Symbol	Conditions	Value	Unit
Inverter Switch				
Drain-source voltage	V_{DSS}		1200	V
Drain current (DC current) ⁽²⁾	I_D	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	59	A
Peak drain current	I_{DM}	t_p limited by T_{jmax}	240	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	115	W
Gate-source voltage	V_{GSS}		-5 / 18	V
		dynamic	-10 / 22	
Maximum Junction Temperature	T_{jmax}		175	°C

⁽¹⁾Calculation based on chip supplier datasheet at $T_j=175\text{°C}$

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
Creepage distance			>12,7	mm
Clearance			8,62	mm
Comparative Tracking Index	CTI		≥ 600	



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Characteristic Values

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

Inverter Switch

Static

Drain-source on-state resistance	$r_{DS(on)}$		18		60	25		20	29,5	mΩ
Gate-source threshold voltage	$V_{GS(th)}$				0,006	25	1,7	2,25	2,75	V
Gate to Source Leakage Current	I_{GSS}		22	0		25			200	nA
Zero Gate Voltage Drain Current	I_{DSS}		0	1200		25			20	μA
Internal gate resistance	r_g							1		Ω
Gate charge	Q_g		-5/18	800	80	25		170		nC
Short-circuit input capacitance	C_{iss}	$f = 500$ kHz	0	800	0	25		4000		pF
Short-circuit output capacitance	C_{oss}							224		
Reverse transfer capacitance	C_{rss}							10		
Diode forward voltage	V_{SD}		0		60	25		4,1		V

Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	$\lambda_{paste} = 3,4$ W/mK (PSX)						0,83		K/W
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Thermistor

Static


Rated resistance	R					25		5		kΩ
Deviation of R100	$\Delta_{R/R}$	$R_{100} = 493$ Ω				100	-5		5	%
Power dissipation	P							245		mW
Power dissipation constant	d					25		1,4		mW/K
B-value	$B_{(25/50)}$	Tol. ± 2 %						3375		K
B-value	$B_{(25/100)}$	Tol. ± 2 %						3437		K
Vincotech Thermistor Reference									K	



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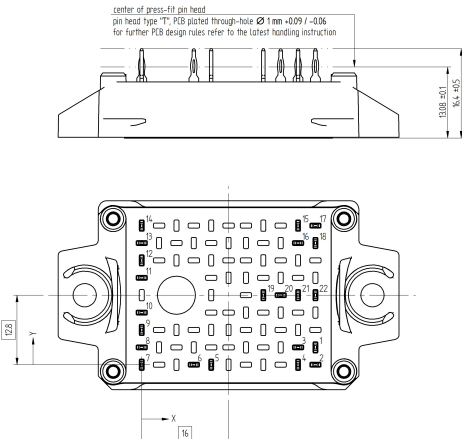
10-EZ124PA020MS-LQ18F78T
target datasheet

Ordering Code	
Version	Ordering Code
Without thermal paste	10-EZ124PA020MS-LQ18F78T
With thermal paste (5,2 W/mK, PTM6000HV)	10-EZ124PA020MS-LQ18F78T-/7/

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

Pin table [mm]			
Pin	X	Y	Function
1	32	3,2	DC-2
2	32	0	DC-2
3	28,8	3,2	G4
4	28,8	0	S4
5	12,8	0	T2
6	9,6	0	T1
7	0	0	AC2
8	0	3,2	AC2
9	0	6,4	S3
10	0	9,6	G3
11	0	16	G1
12	0	19,2	S1
13	0	22,4	AC1
14	0	25,6	AC1
15	28,8	25,6	S2
16	28,8	22,4	G2
17	32	25,6	DC-1
18	32	22,4	DC-1
19	22,4	12,8	DC+
20	25,6	12,8	DC+
21	28,8	12,8	DC+
22	32	12,8	DC+

Outline

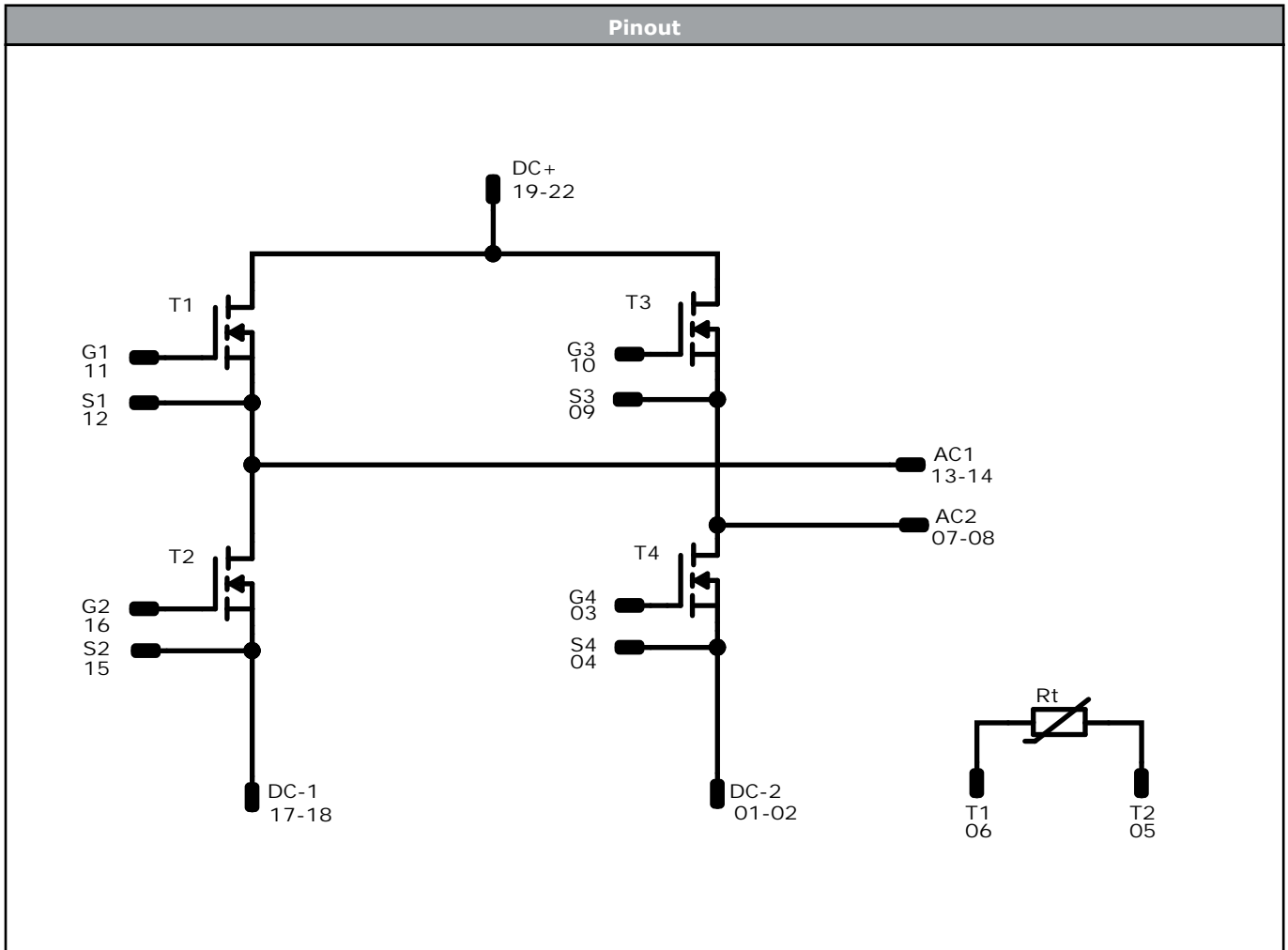


center of press-fit pin head
pin head type "T": PCB plated through-hole \varnothing 0.1mm +0.09/-0.06
for further PCB design rules refer to the latest handling instruction

Tolerance of pinposition: \pm 0.1mm at the end of pins
Dimension of coordinate axis is only offset without tolerance



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Identification					
ID	Component	Voltage	Current	Function	Comment
T11, T12, T13, T14	MOSFET	1200 V	20 mΩ	Inverter Switch	
Rt	Thermistor			Thermistor	



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

Handling instruction
Handling instructions for <i>flow</i> E1 packages see vincotech.com website.

Package data
Package data for <i>flow</i> E1 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 UL 1557 recognized under E192116 up to a junction temperature under switching condition $T_{j,op}=175^{\circ}C$ and up to 3500VAC/1min isolation voltage. For more information see vincotech.com website.



Document No.:	Date:	Modification:	Pages
10-EZ124PA020MS-LQ18F78T-T1-14	31 Jan. 2025	Initial Release	

Product status definition		
Datasheet Status	Product Status	Definition
Target	Formative or In Design	This datasheet contains the design specifications for product development. Specifications may change in any manner without notice. The data contained is exclusively intended for technically trained staff.

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