

Features

- Revolutionary semiconductor material - Silicon Carbide
- Benchmark switching behavior
- No reverse recovery/ No forward recovery
- Temperature independent switching behavior
- Optimized for high temperature operation
- Qualified according to JEDEC criteria

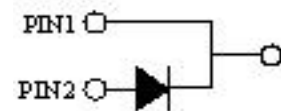
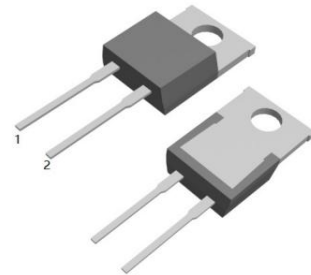
Applications

- Switch mode power supply
- Power factor correction
- Solar inverter
- Uninterruptible power supply

Description

- System efficiency improvement over Si diodes
- Enabling higher frequency / increased power density solutions
- System size/cost savings due to reduced heatsink requirements and smaller magnetics
- Reduced EMI
- Highest efficiency across the entire load range
- Robust diode operation during surge events
- High reliability

TO-220AD-2L



Key performance parameters

Product Summary

V_{DC}	1200V
I_F	5A
$T_{j,max}$	175°C

Package Marking and Ordering Information

Part #	Marking	Package	Packing	Reel Size	Tape Width	Qty
PESC05120-R	PESC05120	TO-220AD-2L	Tube	N/A	N/A	50pcs

Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Repetitive peak reverse voltage	V_{RRM}	1200	V
Continuous forward current for $T_C = 150^\circ\text{C}$	I_F	5	A
Non-Repetitive Peak Forward Surge Current $T_C=25^\circ\text{C}, t_p=8.3\text{ ms}$, Half Sine Pulse $T_C=150^\circ\text{C}, t_p=8.3\text{ ms}$, Half Sine Pulse	I_{FSM}	70 60	A
i^2t value $T_C = 25^\circ\text{C}$, $t_p=8.3\text{ ms}$ i^2t value $T_C = 150^\circ\text{C}$, $t_p=8.3\text{ ms}$	$\int i^2 dt$	20 15	A^2s
Total power dissipation $T_C = 25^\circ\text{C}$	P_D	82	W
Operating junction and storage temperature	T_j, T_{stg}	-55 to +175	$^\circ\text{C}$
Soldering temperature, wave soldering only allowed at leads (1.6mm from case for 10s)	T_{sold}	260	$^\circ\text{C}$

Thermal Resistance

Parameter	Symbol	Condition	Value			Unit
			min.	typ.	max.	
Thermal resistance, junction – case.	R_{thJC}		-	1.22	1.8	°C/W
Thermal resistance, junction – ambient(min. footprint)	R_{thJA}		-		62	°C/W

Electrical Characteristic

Static Characteristic ($T_j=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Condition	Value			Unit
			min.	typ.	max.	
DC blocking voltage	V_{DC}	$I_R=100\mu\text{A}$	1200	-	-	V
Forward voltage	V_F	$I_F=5\text{A}, T_j=25^{\circ}\text{C}$	-	1.4	1.8	V
		$I_F=5\text{A}, T_j=150^{\circ}\text{C}$	-	1.9	2.4	V
Reverse current	I_R	$V_R=1200\text{V}, T_j=25^{\circ}\text{C}$		1	10	μA
		$V_R=1200\text{V}, T_j=150^{\circ}\text{C}$	-	5	100	

Dynamic Characteristic ($T_j=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Condition	Value			Unit
			min.	typ.	max.	
Total capacitance	C	$V_R=0.1\text{V}, f=1\text{MHz}$	-	333	-	pF
		$V_R=400\text{V}, f=1\text{MHz}$	-	23	-	
		$V_R=800\text{V}, f=1\text{MHz}$	-	18	-	
Total capacitive charge	Q_C	$V_R=800\text{V}, Q_c=\int_0^{V_R} C(V)dV$	-	25	-	nC

Typical Performance Characteristics

Fig 1: Forward Characteristics

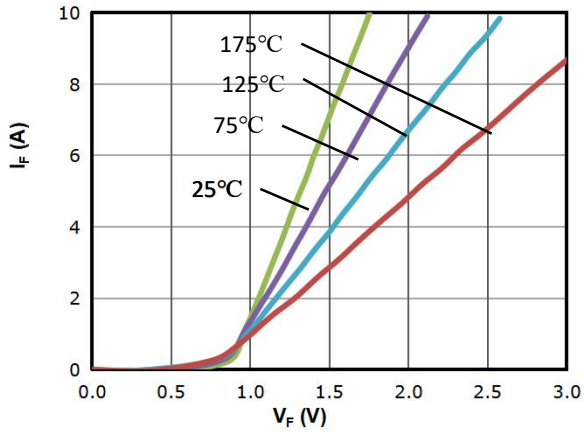


Fig 2: Reverse Characteristics

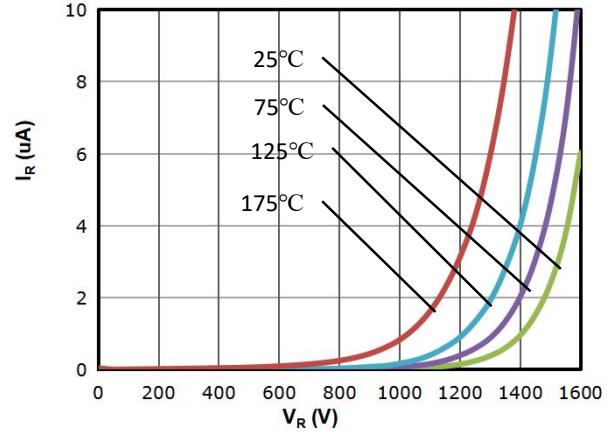


Fig 3: Total Capacitance Charge VS. Reverse Voltage

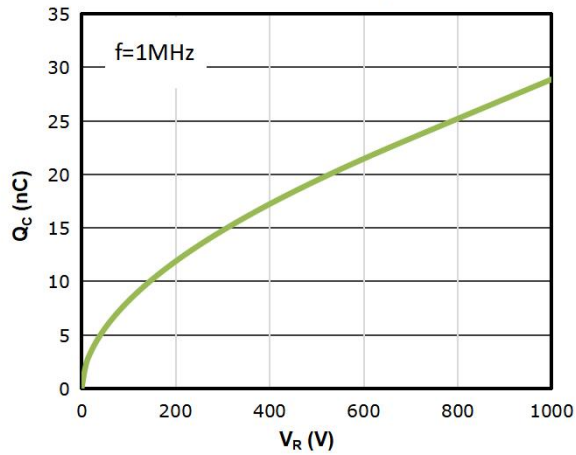


Fig 4: Capacitance Characteristics

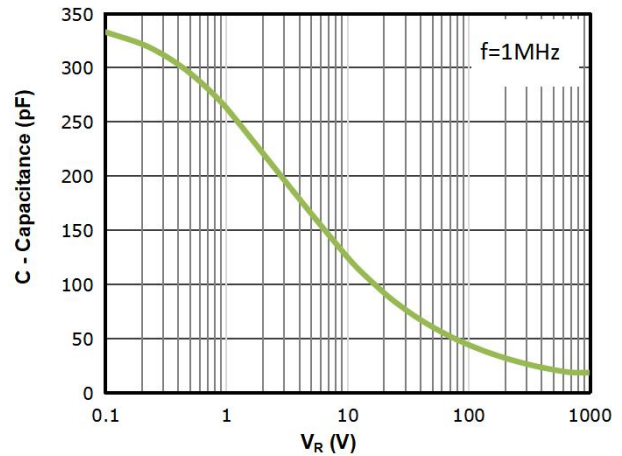


Fig 5: Power Dissipation

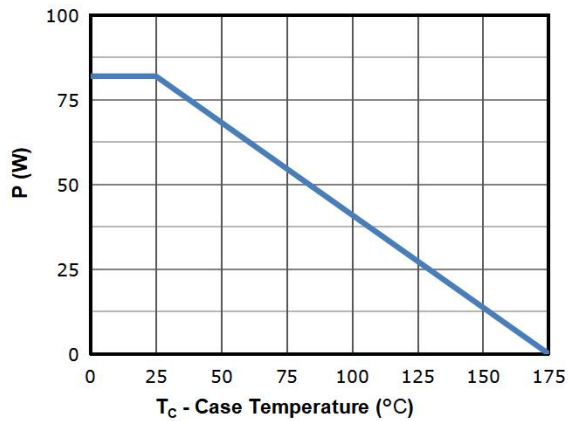
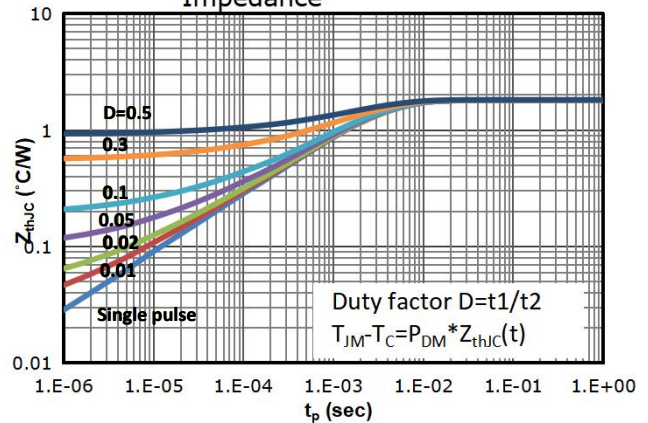
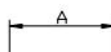


Fig 6: Max. Transient Thermal Impedance



Package Outline: TO-220AD-2L

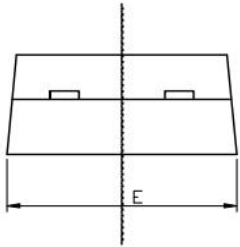
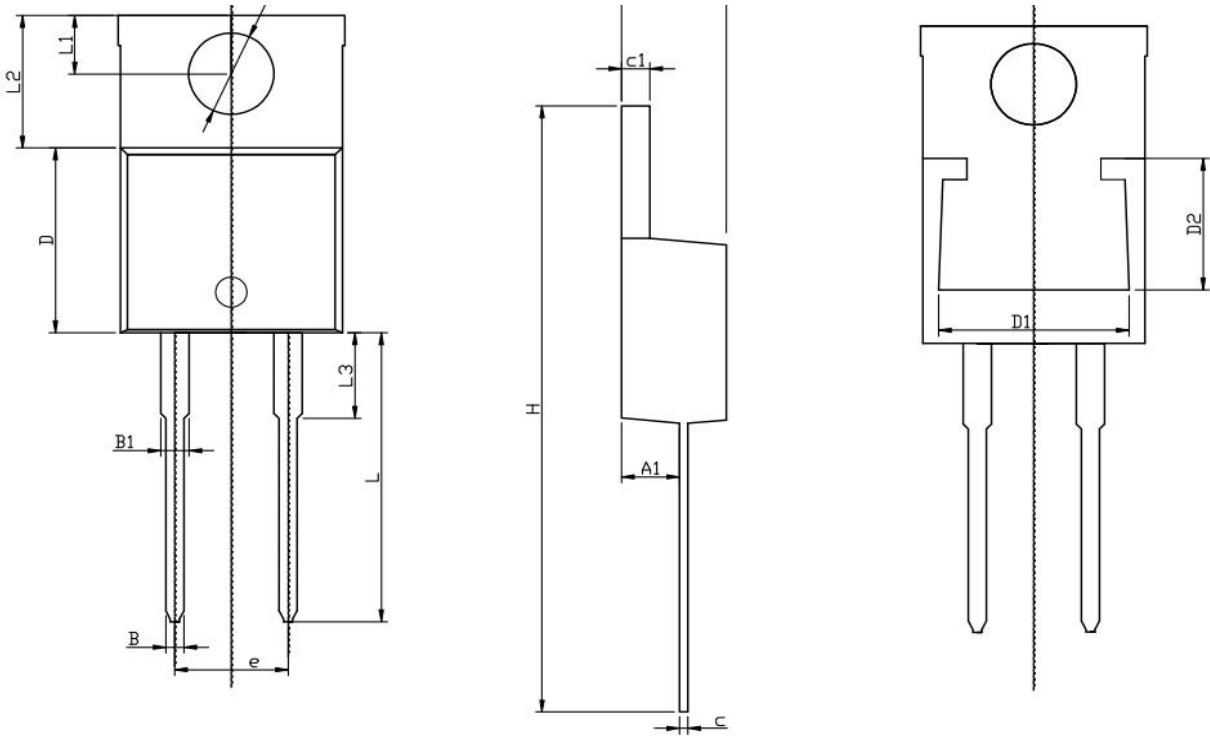


PESC05120-R

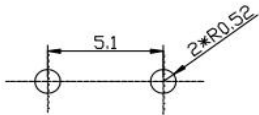
Silicon Carbide 1200V Schottky Diode



重庆平伟半导体股份有限公司



RECOMMENDED LAND PATTERN



UNIT: mm

	MIN	NOM	MAX
A	4.50	4.70	4.90
A1	2.45	2.60	2.70
B	0.72	0.82	0.92
B1	1.12	1.27	1.42
C	0.28	0.38	0.48
c1	1.17	1.27	1.37
D	8.46	8.66	8.86
D1	7.70	7.90	8.40
D2	5.00	5.20	5.40
e		5.10	
E	9.85	10.15	10.45
H	28.00	28.50	29.00
φP		3.84	
L	13.1	13.6	14.1
L1	2.54	2.74	2.94
L2	6.04	6.24	6.44
L3	3.85	4.05	4.35

Disclaimer

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