TDCP30B120

1200V, 30A Silicon Carbide Schottky Diode

Features

- 1200V Silicon Carbide Schottky Rectifier
- Zero Recovery Current
- Temperature-Independent Switching Behavior
- Extremely Fast Switching
- RoHS Compliant
- JEDEC Qualification

Applications

- General Rectification

Device	Package	Marking	Remark
TDCP30B120	TO-220-2L	TDCP30B120	RoHS

Absolute Maximum Ratings

Parameter		Symbol	Value	Unit
Repetitive Peak Reverse Voltage		V_{RRM}	1200	V
Reverse Blocking Voltage		V_R	1200	V
Average Rectified Forward Current	T_C = 140 ℃	$I_{F(AV)}$	30	A
Non-Repetitive Peak Surge Current 60Hz Single Half Sine Wave		I_{FSM}	300	A
Power Dissipation	T_C = 25 ℃	P_{tot}	250	W
	T_C = 110 ℃		108	W
Operating Junction Temperature		T_J	-55 ~ 175	℃
Storage Temperature Range		T_{STG}	-55 ~ 150	℃

Thermal Characteristics

Parameter	Symbol	Value	Unit
Typical Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	0.6	℃/W

Electrical Characteristics

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Forward Voltage Drop	V_F	I_F =30A, T_C=25 °C	--	1.62	2.12	V
		I_F =30A, T_C=175 °C	--	2.48	2.58	V
Reverse Leakage Current	I_R	V_R = 1200V, T_C=25 °C	--	--	200	μA
Total Capacitive Charge(Note1)	Q_C	V_R = 800V, I_F = 30A, di/dt=200A/μs, T_C=25 °C	--	135	--	nC
Total Capacitance	C	V_R = 0V, T_C=25 °C, f=1MHz	--	1827	--	pF

Notes :
(1) This is a majority carrier diode, so there is no reverse recovery charge.

Fig.1 Forward voltage drop vs. Forward current

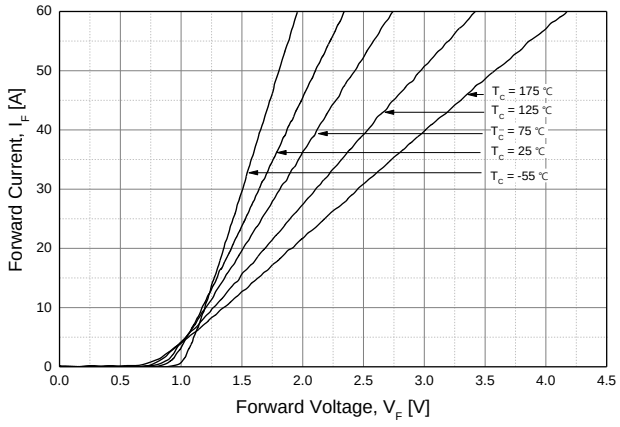


Fig 2. Reverse voltage vs. Reverse current

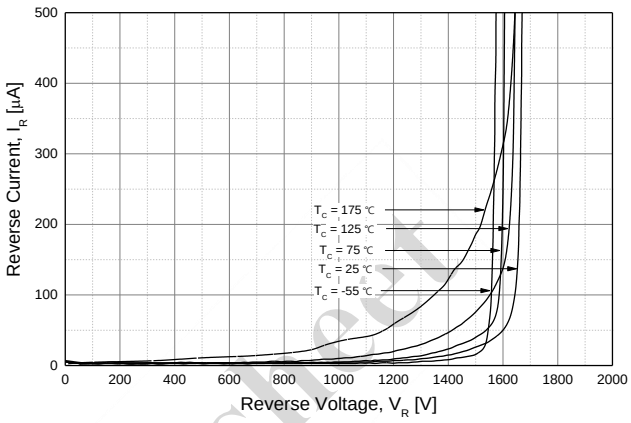


Fig 3. Reverse voltage vs. Reverse charge

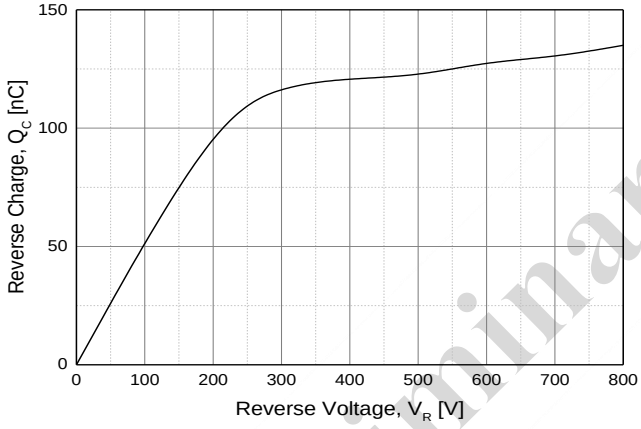


Fig 4. Capacitance

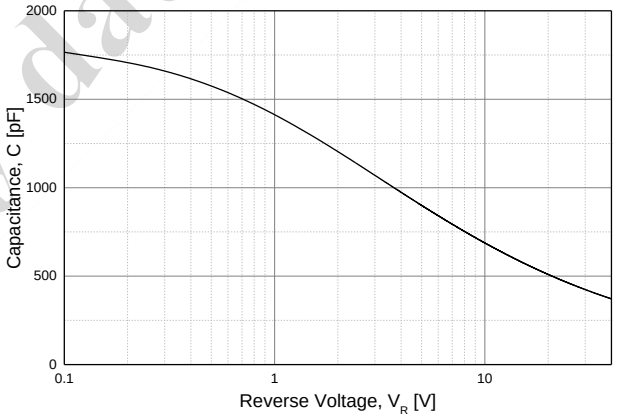


Fig 5. Case temperature vs. Power Dissipation

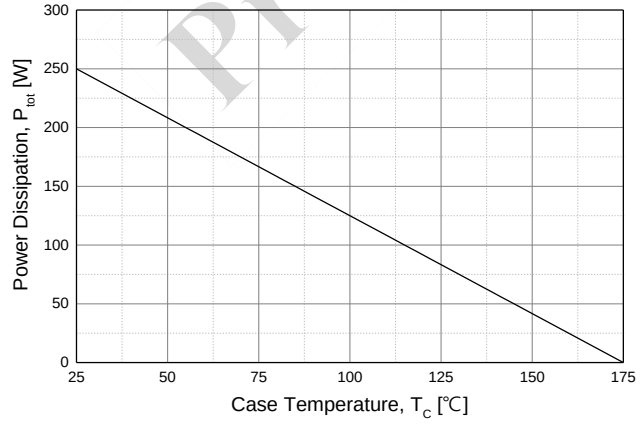
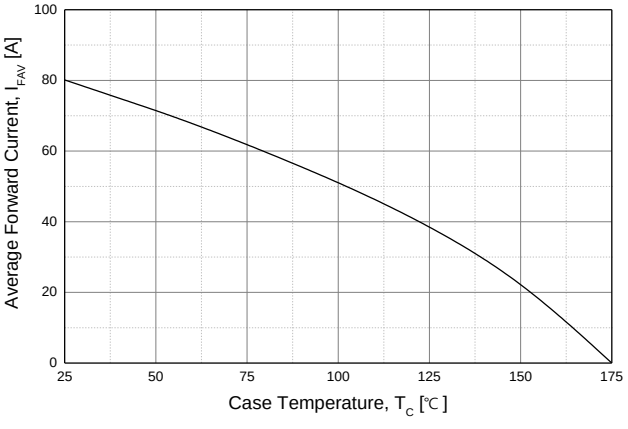
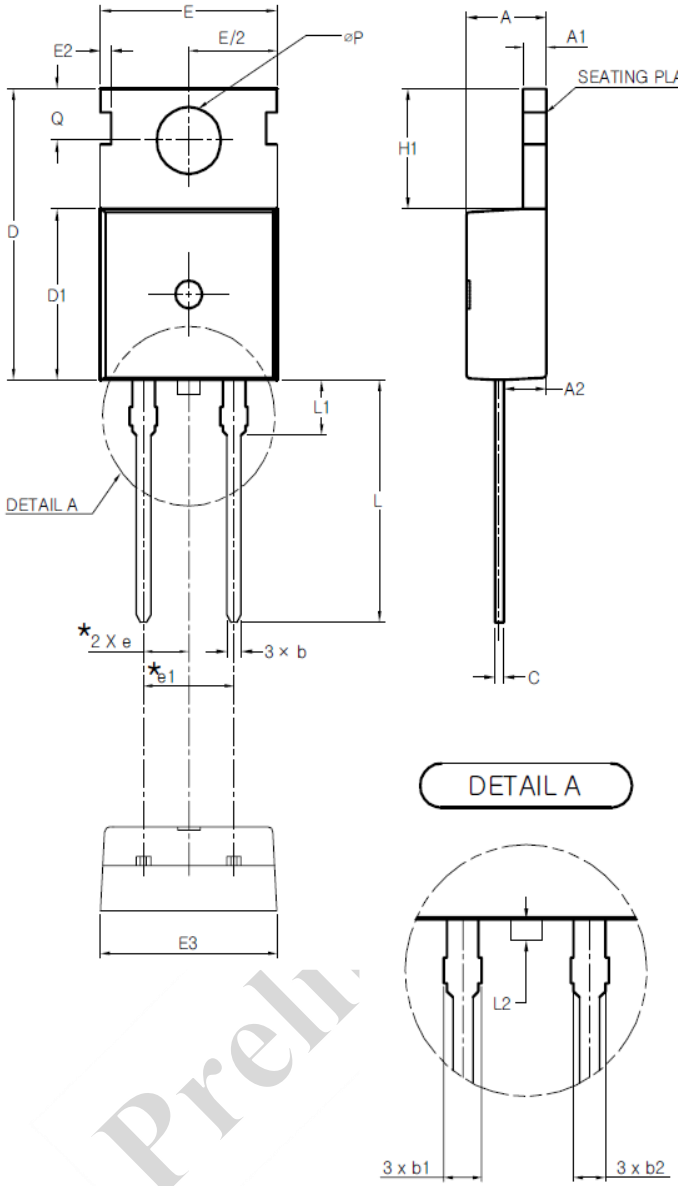


Fig 6. Case temperature vs. Forward current



TO-220-2L MECHANICAL DATA



SYMBOL	MIN	NOM	MAX
A	4.30	4.50	4.70
A1	1.25	1.30	1.40
A2	2.20	2.40	2.60
b	0.70	0.80	0.90
b1	1.42	1.52	1.62
b2	1.17	1.27	1.37
c	0.45	0.50	0.60
D	15.50	15.70	15.90
D1	9.00	9.20	9.00
D2		(12.70)	
*E	9.70	9.90	10.10
E1		(8.00)	
E2		(0.60)	
E3	9.70	9.90	10.10
e		2.54 BSC	
e1		5.08 BSC	
H1	6.30	6.50	6.70
L	12.88	13.08	13.28
L1		(3.00)	
L2	—	—	0.80
ØP	3.50	3.60	3.70
Q	2.70	2.80	2.90