

**Features**

- 650V Silicon Carbide Schottky Rectifier
- Zero Recovery Current
- Temperature-Independent Switching Behavior
- Extremely Fast Switching
- RoHS Compliant
- JEDEC Qualification

**Applications**

- General Rectification



Cathode Anode



Device	Package	Marking	Remark
TDCP50B65	TO-220-2L	TDCP50B65	RoHS

**Absolute Maximum Ratings**

Parameter	Symbol	Value	Unit	
Repetitive Peak Reverse Voltage	$V_{RRM}$	650	V	
Reverse Blocking Voltage	$V_R$	650	V	
Average Rectified Forward Current	$I_{F(AV)}$	50	A	
Non-Repetitive Peak Surge Current 60Hz Single Half Sine Wave	$I_{FSM}$	500	A	
Power Dissipation	$P_{tot}$	$T_C = 25\text{ }^\circ\text{C}$	250	W
		$T_C = 110\text{ }^\circ\text{C}$	108	W
Operating Junction Temperature	$T_J$	-55 ~ 175	$^\circ\text{C}$	
Storage Temperature Range	$T_{STG}$	-55 ~ 150	$^\circ\text{C}$	

**Thermal Characteristics**

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

**Electrical Characteristics**

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Forward Voltage Drop	$V_F$	$I_F = 50\text{A}, T_C = 25\text{ }^\circ\text{C}$	--	1.62	2.12	V
		$I_F = 50\text{A}, T_C = 175\text{ }^\circ\text{C}$	--	2.16	2.66	V
Reverse Leakage Current	$I_R$	$V_R = 650\text{V}, T_C = 25\text{ }^\circ\text{C}$	--	--	500	$\mu\text{A}$
Total Capacitive Charge <sup>(Note1)</sup>	$Q_C$	$V_R = 400\text{V}, I_F = 50\text{A}, di/dt = 400\text{A}/\mu\text{s}, T_C = 25\text{ }^\circ\text{C}$	--	208	--	nC
Total Capacitance	C	$V_R = 0\text{V}, T_C = 25\text{ }^\circ\text{C}, f = 1\text{MHz}$	--	2210	--	pF

Notes :

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

Fig.1 Forward voltage drop vs. Forward current

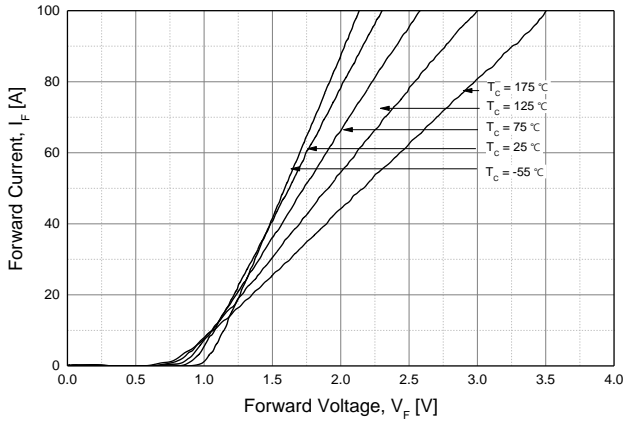


Fig 2. Reverse voltage vs. Reverse current

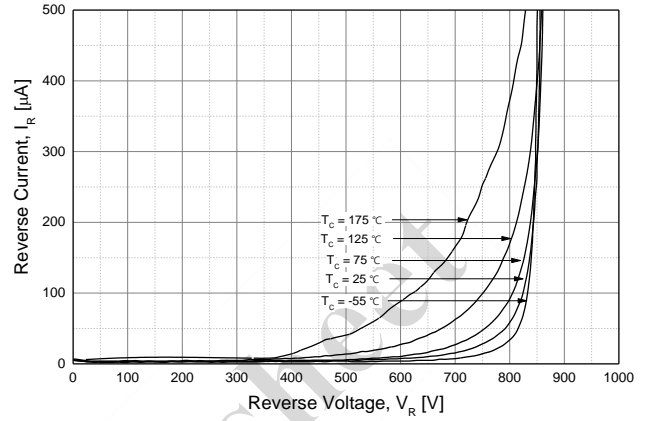


Fig 3. Reverse voltage vs. Reverse charge

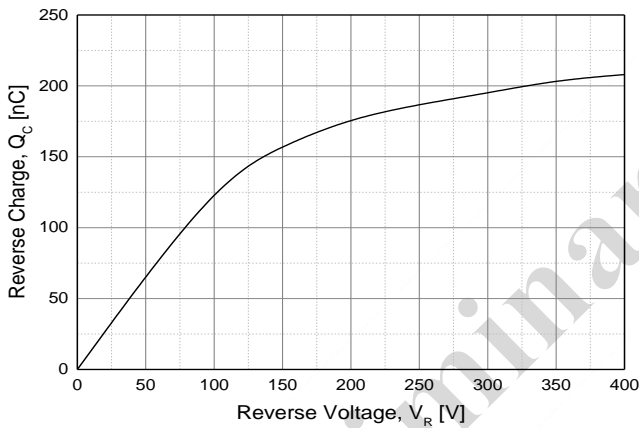


Fig 4. Capacitance

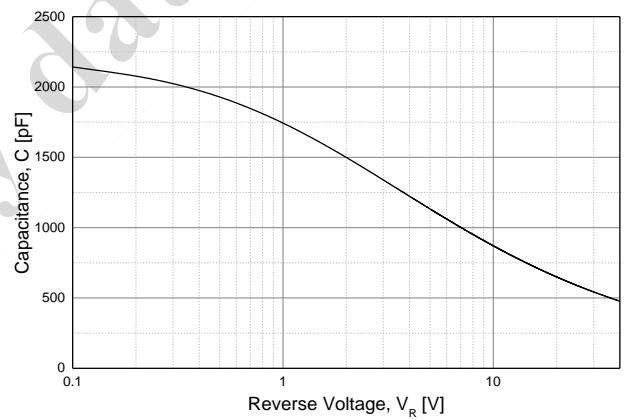


Fig 5. Case temperature vs. Power Dissipation

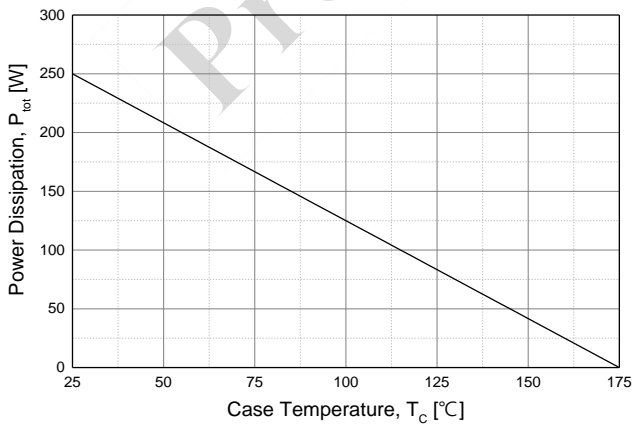
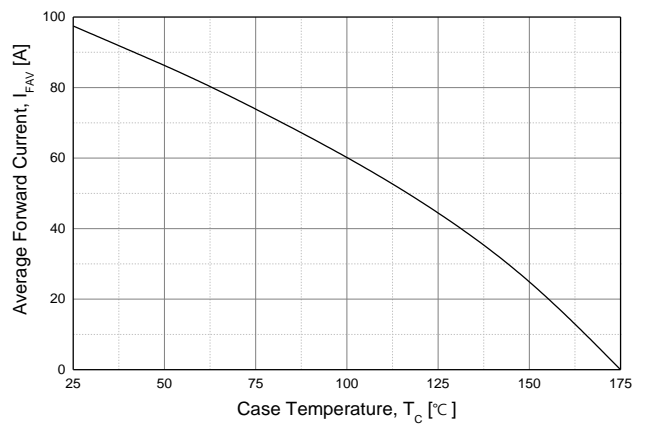
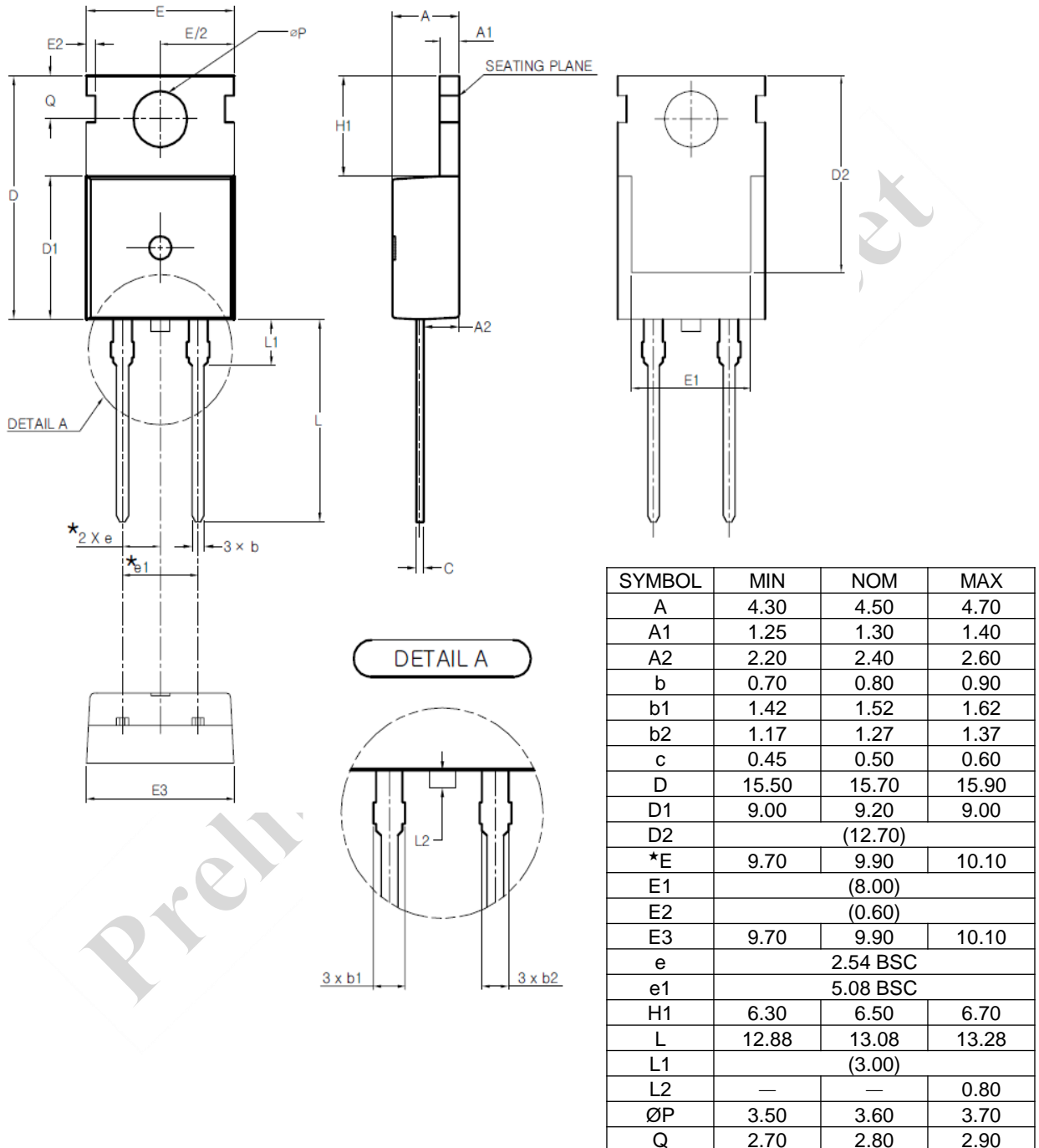


Fig 6. Case temperature vs. Forward current



**TO-220-2L MECHANICAL DATA**



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