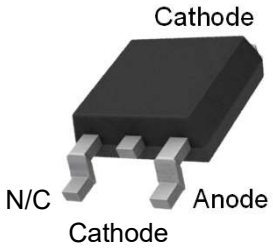
PD008065ED / PD008065ED_G
650V Silicon Carbide Diode

Features

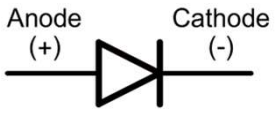
- 650-Volt Schottky Rectifier
- Shorter recovery time
- High-speed switching possible
- High-Frequency Operation
- Temperature-Independent Switching Behavior
- Extremely Fast Switching
- Positive Temperature Coefficient on VF
- RoHS Compliant

Package Outline



Applications

- Switch Mode Power Supplies
- Power Factor Correction
- Motor Drives
- HID Lighting



Absolute Maximum Ratings

Symbol	Parameter		Value	Units
V_{RRM}	Repetitive Peak Reverse Voltage		650	V
V_{RSM}	Surge Peak Reverse Voltage		650	V
V_{DC}	DC Blocking Voltage		650	V
I_F	Continuous Forward Current	T_C = 25˚C T_C = 154˚C	26 8	A
I_{FRM}	Repetitive Peak Forward Current	T_C = 110˚C	63	A
I_{FSM}	Non-Repetitive Forward Surge Current (PW=10ms sinusoidal)	T_C = 25˚C T_C = 110˚C	40 32	A
P_D	Power Dissipation	T_C = 25˚C	88	W
T_J, Tstg	Operating Junction and Storage Temperature		-55 to +175	℃

Electrical Characteristics

T_C = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
V_F	Forward Voltage	I_F = 8A, T_C = 25°C I_F = 8A, T_C = 175°C	--	1.5 2.0	1.8 2.4	V
I_R	Reverse Current	V_R = 650V T_C = 25°C V_R = 650V T_C = 175°C	--	18 36	46 460	uA
Q_C	Total Capacitive Charge	V_R = 400V	--	18	--	nC
C	Total Capacitance	V_R = 1V, T_J = 25°C, f = 1MHz V_R = 520V, T_J = 25°C, f = 1MHz	--	350 45	--	pF

Thermal Characteristics

T_C = 25°C unless otherwise noted

Symbol	Parameter	Min	Typ	Max	Units
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case	--	1.7	2.0	℃/W

Package Marking and Ordering Information

Device Marking	Device	Package	Reel Size	Tape Width	Quantity
PD008065ED	PD008065ED	D-PAK	380mm	16mm	2500
PD008065ED_G	PD008065ED_G	D-PAK	380mm	16mm	2500

* PD008065ED_G : RoHS Compliant
* Quantity of Tube type : 70ea

Typical Characteristics

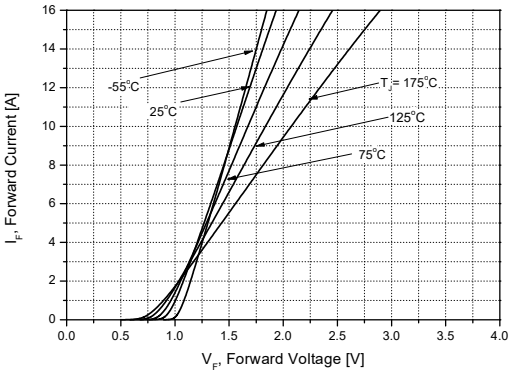


Figure 1. Forward Characteristics

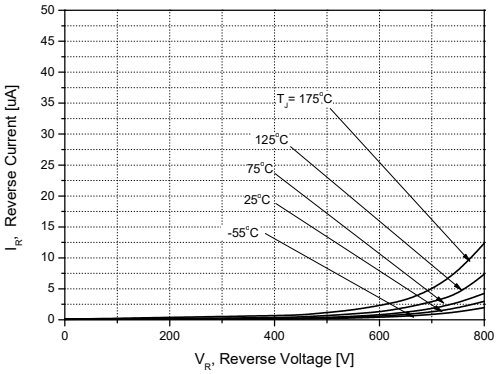


Figure 2. Reverse Characteristics

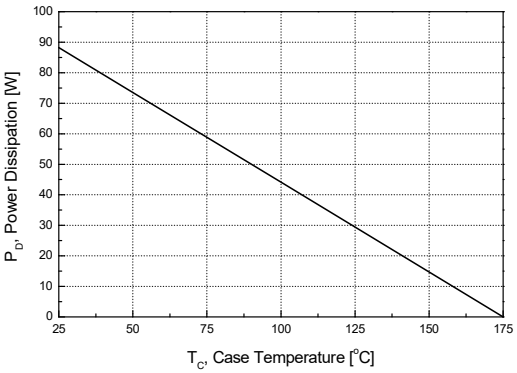


Figure 3. Power Dissipation

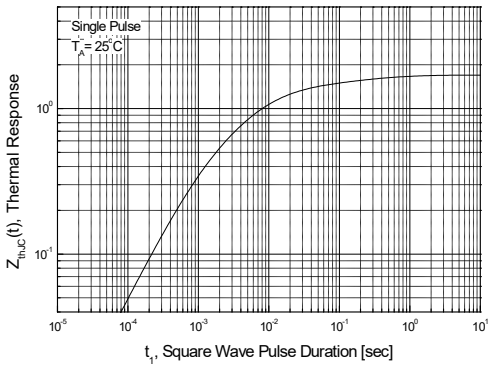


Figure 4. Transient Thermal Resistance

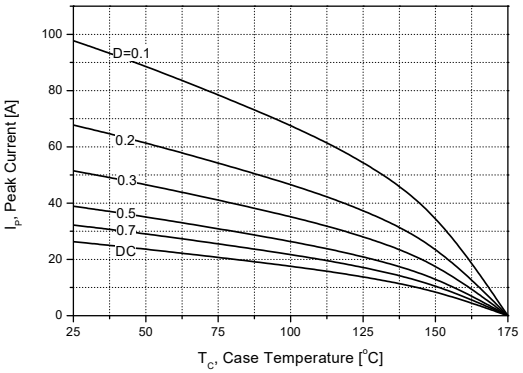


Figure 5. Peak Forward Current Derating

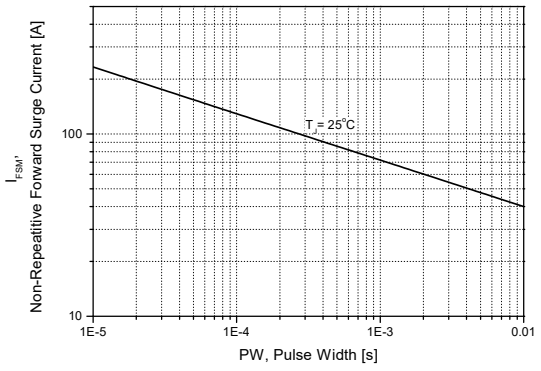


Figure 6. Non-Repetitive Peak Forward Surge Current vs. Pulse Duration

Typical Characteristics

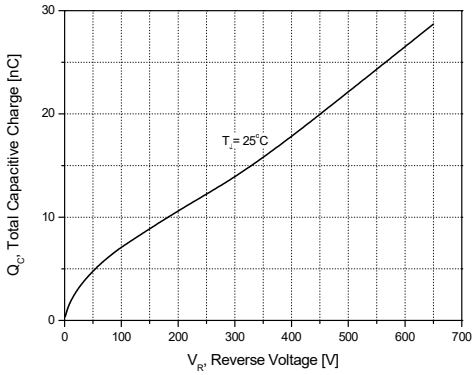


Figure 7. Total Capacitive Charge

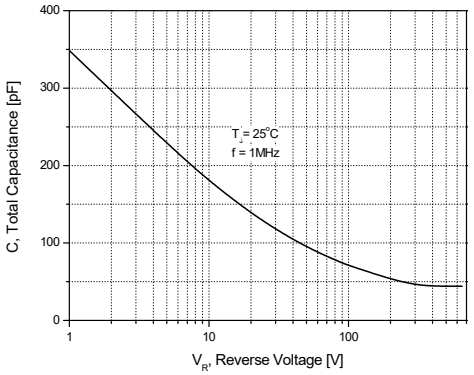


Figure 8. Total Capacitance

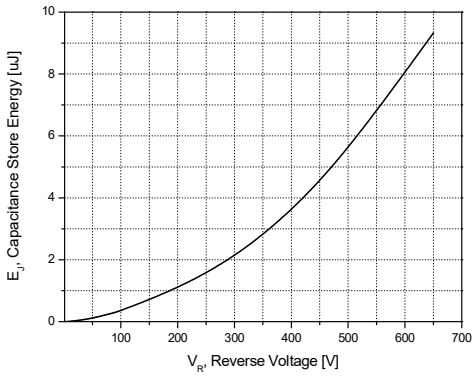


Figure 9. Capacitance Store Energy

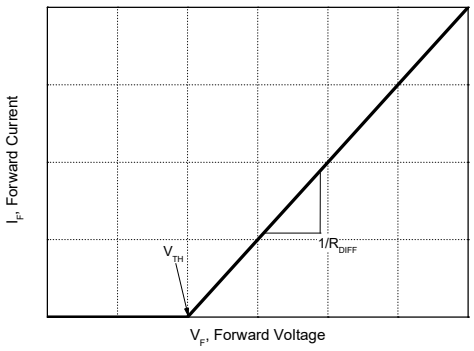


Figure 10. Equivalent Forward Current Curve

$$V_F = V_{TH} + R_{DIFF} \times I_F$$

Threshold Voltage(V_{TH})

$V_{TH}(T_j) = -0.001 \times (T_j) + 0.950$ [V]

Differential Resistance (R_{DIFF})

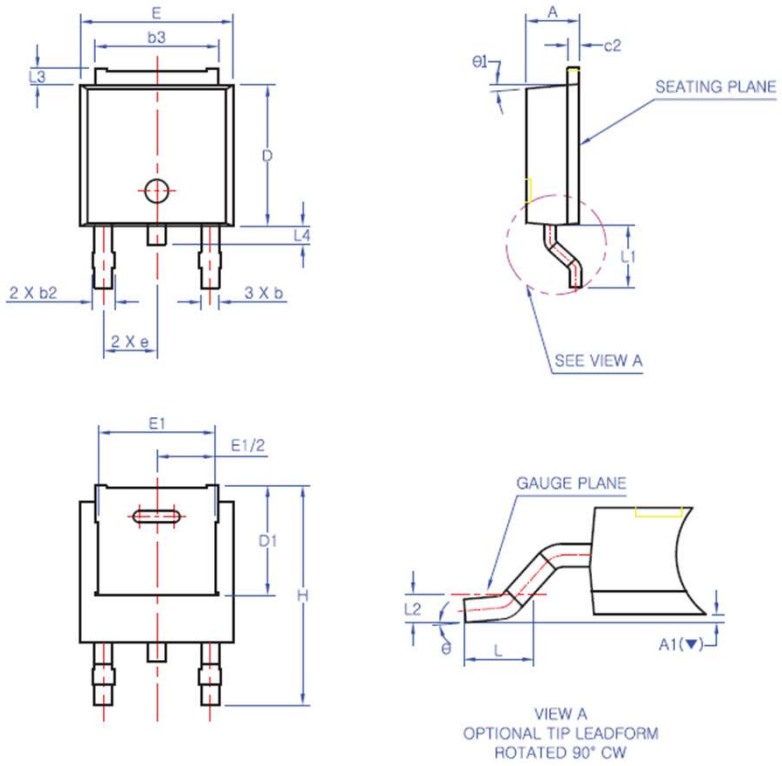
$R_{DIFF}(T_j) = A \times T_j^2 + B \times T_j + C$ [Ω]

$A = 1.51 \times 10^{-6}$
$B = 1.77 \times 10^{-4}$
$C = 5.55 \times 10^{-2}$

[T_j [°C]: -55 °C ≤ T_j ≤ 175 °C; IF ≤ 8 A]

Package Information

TO-252-2L



SYMBOL	MIN	NOM	MAX
A	2.20	2.30	2.40
A1 (▼)	0.00	–	0.127
b	0.66	0.76	0.86
b2	–	–	0.96
b3	5.04	5.34	5.64
c2	0.40	0.50	0.60
D	5.90	6.10	6.30
D1		(4.75)	
E	6.40	6.60	6.80
E1		(5.04)	
e		2.30 BSC	
H	9.20	9.50	9.80
L	1.27	1.47	1.67
L1	2.50	2.70	2.90
L2		0.508 BSC	
L3	0.50	0.70	0.90
L4	0.60	0.80	1.00
θ	0°	–	10°
θ1		(5°)	

* NOTE

1. THESE DIMENSIONS DO NOT INCLUDE PROTRUSIONS OF THE MOLD.
2. THE "( )" MARK IS THE REFERENCE
3. COPLANARITY : MAX 0.10mm
4. THE "L4" SYMBOL IS A PROTRUSION OF THE LEAD FRAME.

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