PD010120E2H / PD010120E2H_G
1200V Silicon Carbide Diode

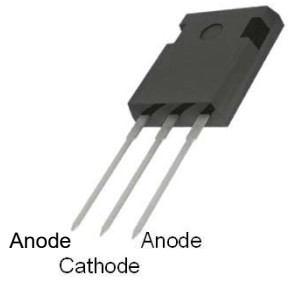
Features

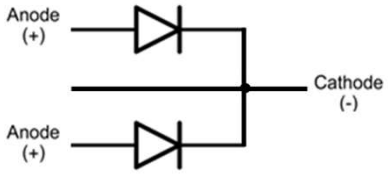
- 1200-Volt Schottky Rectifier
- Shorter recovery time
- High-speed switching possible
- High-Frequency Operation
- Temperature-Independent Switching Behavior
- Extremely Fast Switching
- Positive Temperature Coefficient on VF
- RoHS Compliant

Applications

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

Package Outline





Absolute Maximum Ratings

Symbol	Parameter		Value	Units
V_{RRM}	Repetitive Peak Reverse Voltage		1200	V
V_{RSM}	Surge Peak Reverse Voltage		1200	V
V_{DC}	DC Blocking Voltage		1200	V
I_F	Continuous Forward Current	T_C = 25˚C T_C = 150˚C	14 / 28 5 / 10	A
I_{FRM}	Repetitive Peak Forward Current	T_C = 110˚C	33 / 66	A
I_{FSM}	Non-Repetitive Forward Surge Current	T_C = 25˚C T_C = 110˚C	25 / 50 20 / 40	A
P_D	Power Dissipation	T_C = 25˚C	68 / 136	W
T_J, Tstg	Operating Junction and Storage Temperature		-55 to +175	℃

* Per Leg / Per Device

Electrical Characteristics (Per Leg)

T_C = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
V_F	Forward Voltage	I_F = 5A, T_C = 25°C I_F = 5A, T_C = 175°C	--	1.5 2.0	1.8 2.4	V
I_R	Reverse Current	V_R = 1200V T_C = 25°C V_R = 1200V T_C = 175°C	--	15 30	40 400	uA
Q_C	Total Capacitive Charge	V_R = 800V	--	21	--	nC
C	Total Capacitance	V_R = 1V, T_J = 25°C, f = 1MHz V_R = 800V, T_J = 25°C, f = 1MHz	--	327 26	--	pF

Thermal Characteristics

T_C = 25°C unless otherwise noted

Symbol	Parameter	Min	Typ	Max	Units
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case	--	2.2 / 1.1	2.6 / 1.3	℃/W

* Per Leg / Per Device

Package Marking and Ordering Information

Device Marking	Device	Package	Reel Size	Tape Width	Quantity
PD010120E2H	PD010120E2H	TO-247_3L	-	-	30
PD010120E2H_G	PD010120E2H_G	TO-247_3L	-	-	30

* PD010120E2H_G : RoHS Compliant

Typical Characteristics (Per Leg)

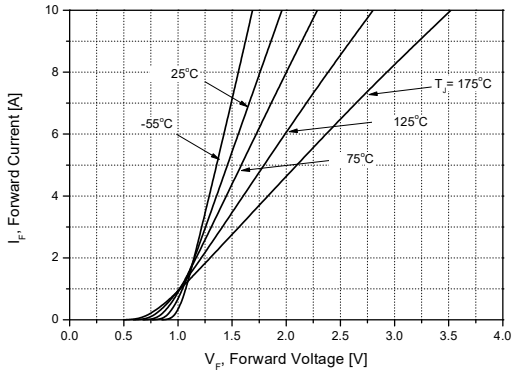


Figure 1. Forward Characteristics

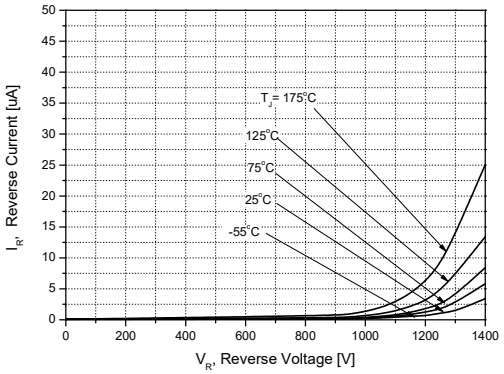


Figure 2. Reverse Characteristics

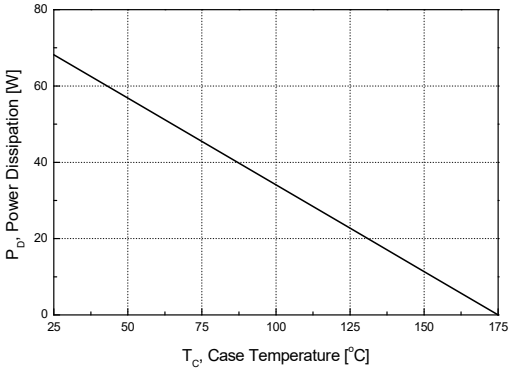


Figure 3. Power Dissipation

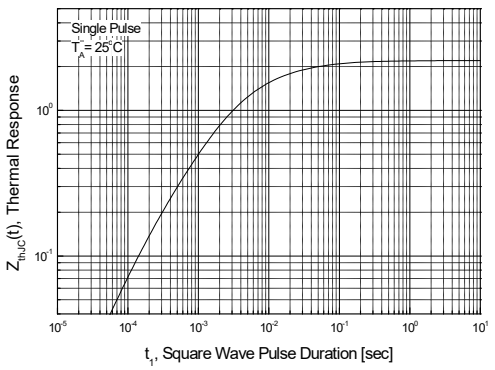


Figure 4. Transient Thermal Resistance

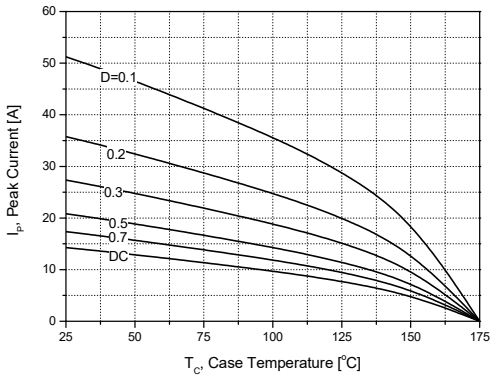


Figure 5. Peak Forward Current Derating

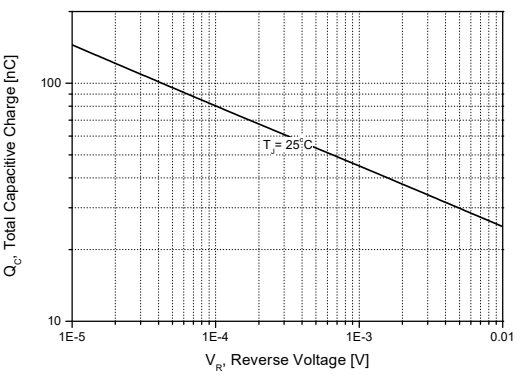


Figure 6. Non-Repetitive Peak Forward Surge Current vs. Pulse Duration

Typical Characteristics (Per Leg)

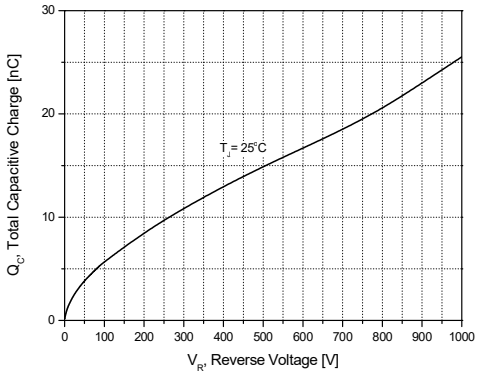


Figure 7. Total Capacitive Charge

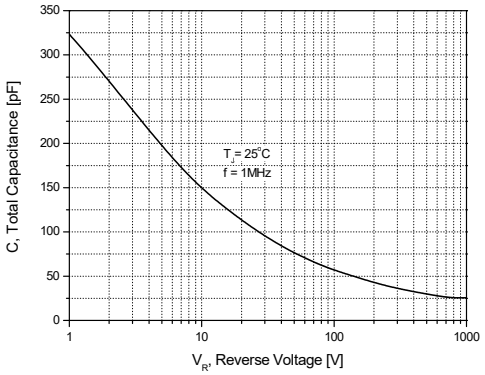


Figure 8. Total Capacitance

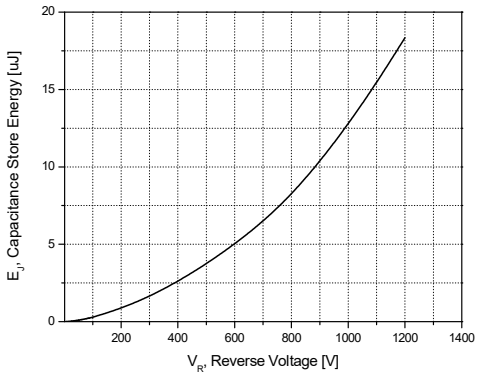


Figure 9. Capacitance Store Energy

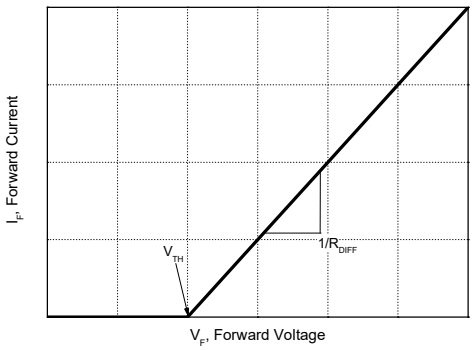


Figure 10. Equivalent Forward Current Curve

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

Threshold Voltage(V_{TH})

$V_{TH}(T_j) = -0.001 \times (T_j) + 0.930$ [V]

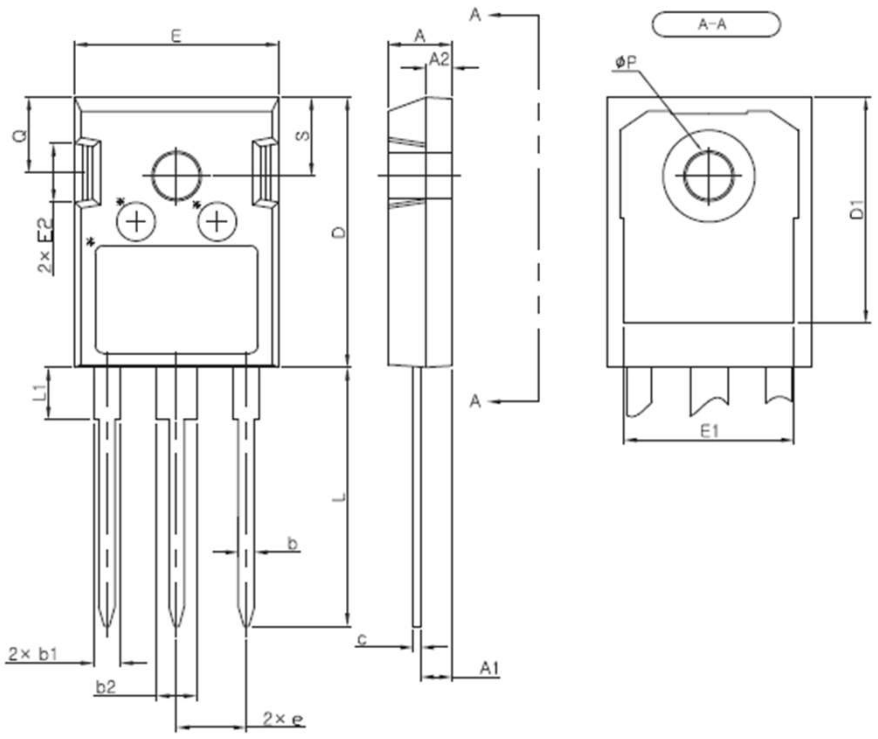
Differential Resistance (R_{DIFF})

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

$A = 3.69 \times 10^{-6}$
$B = 3.98 \times 10^{-4}$
$C = 8.83 \times 10^{-2}$

[T_j [°C]: -55 °C ≤ T_j ≤ 175 °C; IF ≤ 5 A]

Package Information



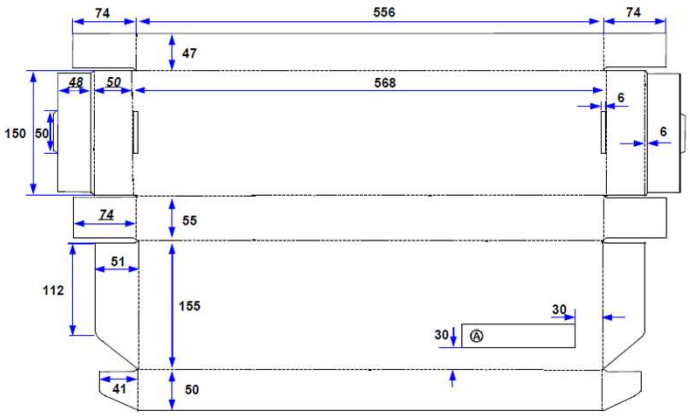
SYMBOL	MIN	NOM	MAX
A	4.80	5.00	5.20
A1	2.29	2.41	2.54
A2	1.90	2.00	2.10
b	1.10	1.20	1.30
b1	1.91	2.10	2.20
b2	2.92	3.10	3.20
c	0.50	0.60	0.70
D	20.80	21.07	21.34
D1	17.43	17.63	17.83
E	15.75	15.94	16.13
E1	13.06	13.26	13.46
E2	4.32	4.58	4.83
e	5.45 BSC		
L	19.81	20.19	20.57
L1	3.81	4.07	4.32
ØP	3.55	3.60	3.65
Q	5.59	5.90	6.20
S	6.15 BSC		

NOTE

1. THESE DIMENSION DO NOT INCLUDE MOLD PROTRUSION

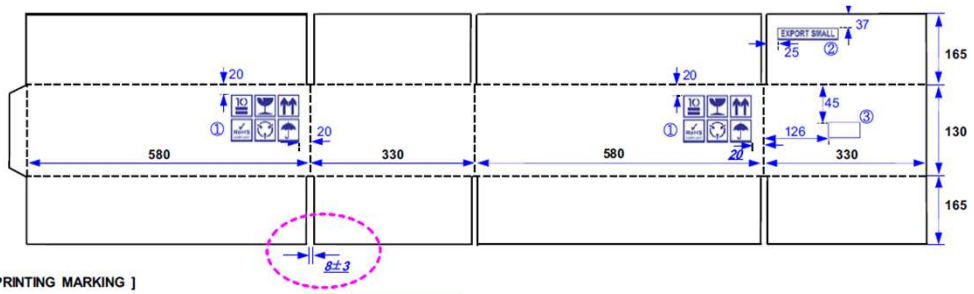
Packing Information

Inner Box



PART ID PDXXXXXXEX_G	PKG Type XX-XXXX-XX
LOT No. XXXXXXXXXXXXX	QTY X,XXX ea
YES POWER TECHNIX	DATE : XXXX.XX.XX

Outer Box



[BOX PRINTING MARKING]

① RoHS COMPLIANT

MARKING SIZE (Each Symbol 30*30)
COLOR (DARK BLUE)

② EXPORT SMALL
MARKING SIZE (112*20)
COLOR (DARK BLUE)

③
LABEL MARKING SIZE (75*35)
COLOR (DARK BLUE)

[NOTE]
1. MATERIAL : KLB175*K180*KLB175*K180*KLB175 (SUK175*K200*K200*K200*SUK175)
2. NAIL QTY : 3 PCS
3. PRINTING TOLERANCE : MARKING SIZE(±3) MARKING POSITION(±5)

PART ID : PDXXXXXXEX_G
LOT NO : XXXXXXXXXXXX
QTY : XX,XXXX ea
YES POWER TECHNIX DATE : XXXX.XX.XX

Notes

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