H3D10065B2-Silicon Carbide Schottky Diode（Version 1.1）

Features

- Zero Reverse Recovery Current
- Zero Forward Recovery Voltage
- Positive Temperature Coefficient on V_F
- Temperature-independent Switching
- 175° C Operating Junction Temperature

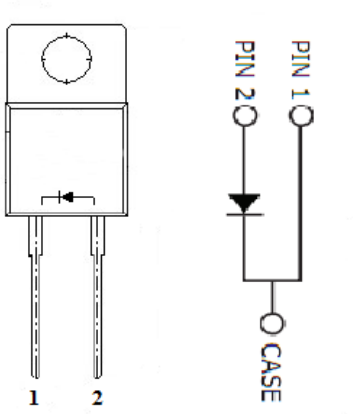
Benefits

- Replace Bipolar with Unipolar Device
- Reduction of Heat Sink Size
- Parallel Devices Without Thermal Runaway
- Essentially No Switching Losses

Applications

- Switch Mode Power Supplies
- Power Factor Correction
- Motor drive, PV Inverter, Wind Power Station

Product Overview		
V_{RRM}	650	V
I_F, $T_C \leqslant 155℃$	10	A
Q_C	25	nC



Part Number	Package	Marking
H3D10065B2	TO-220	H3D10065B2

Maximum Ratings

Symbol	Parameter	Value	Unit	Test Conditions
V_{RRM}	Repetitive Peak Reverse Voltage	650	V	T_C = 25℃
V_{RSM}	Surge Peak Reverse Voltage	650	V	T_C = 25℃

V_R	DC Blocking Voltage	650	V	T_C = 25℃
I_F	Forward Current	10	A	T_C ≤ 155℃
		15	A	T_C ≤ 135℃
I_{FRM}	Non-Repetitive Forward Surge Current	85	A	T_C = 25℃, t_p = 8.3ms, Half Sine Wave
T_C	Maximum Case Temperature	155	℃	
T_J、T_{STG}	Operating Junction and Storage Temperature	-55 to 175	℃	

Electrical Characteristics

Symbol	Parameter	Typ.	Max.	Unit	Test Conditions
V_F	Forward Voltage	1.4	1.65	V	I_F = 10A, T_J = 25℃
		1.75	2.3		I_F = 10A, T_J = 175℃
I_R	Reverse Current	1	20	μA	V_R = 650V, T_J = 25℃
		5	100		V_R = 650V, T_J = 175℃
C	Total Capacitance	440	/	pF	V_R = 0V, T_J = 25℃, f = 1MHz
		57	/		V_R = 200V, T_J = 25℃, f = 1MHz
		46	/		V_R = 400V, T_J = 25℃, f = 1MHz
Q_C	Total Capacitive Charge	25	/	nC	V_R = 650V, I_F = 10A, di/dt = 200A/μs, T_J = 25℃

Thermal Characteristics

Symbol	Parameter	Typ.	Unit
$R_{\theta JC}$	Thermal Resistance from Junction to Case	1.1	℃/W

Typical Performance

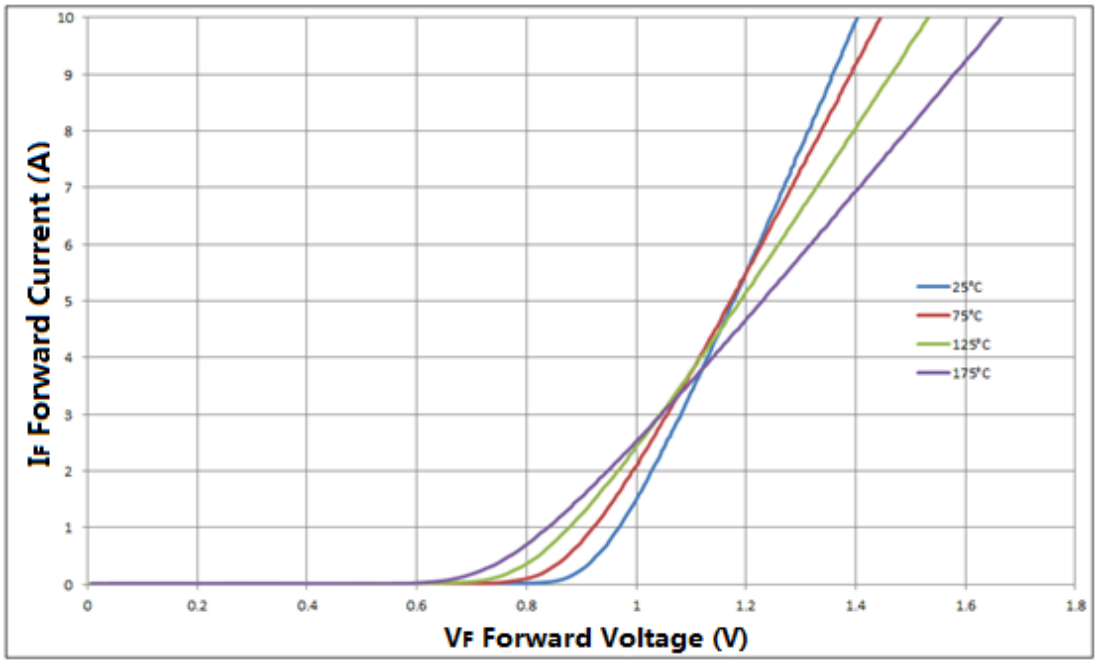


Figure 1. Forward Characteristics

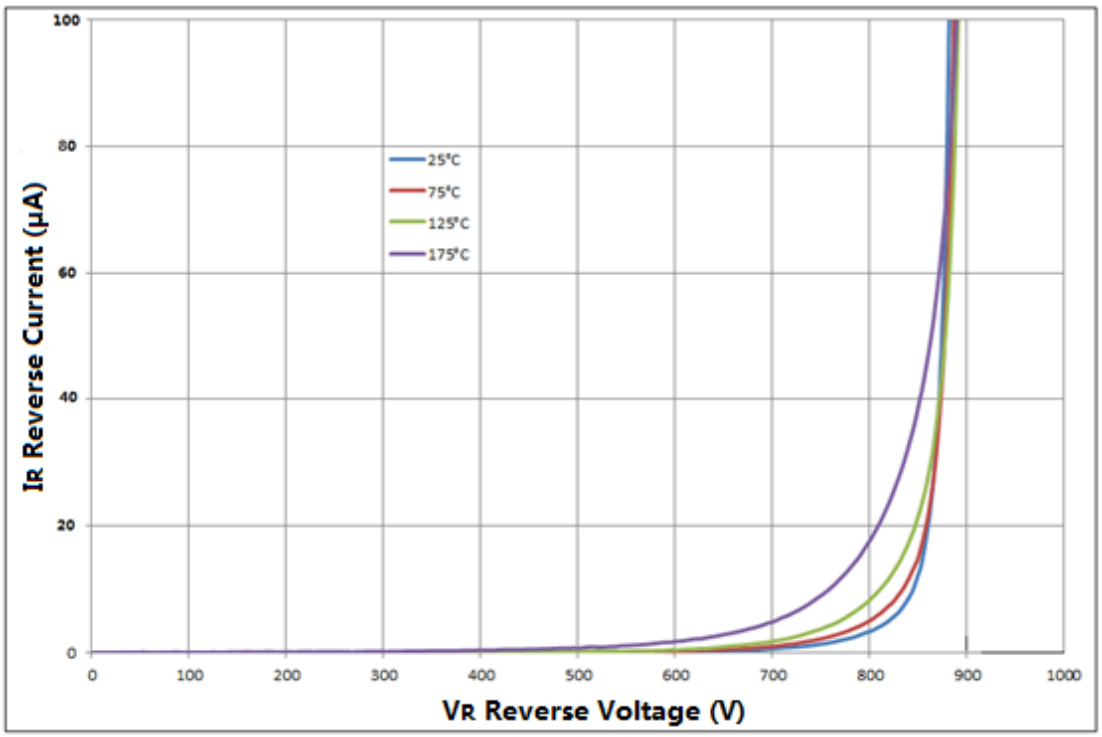


Figure 2. Reverse Characteristics

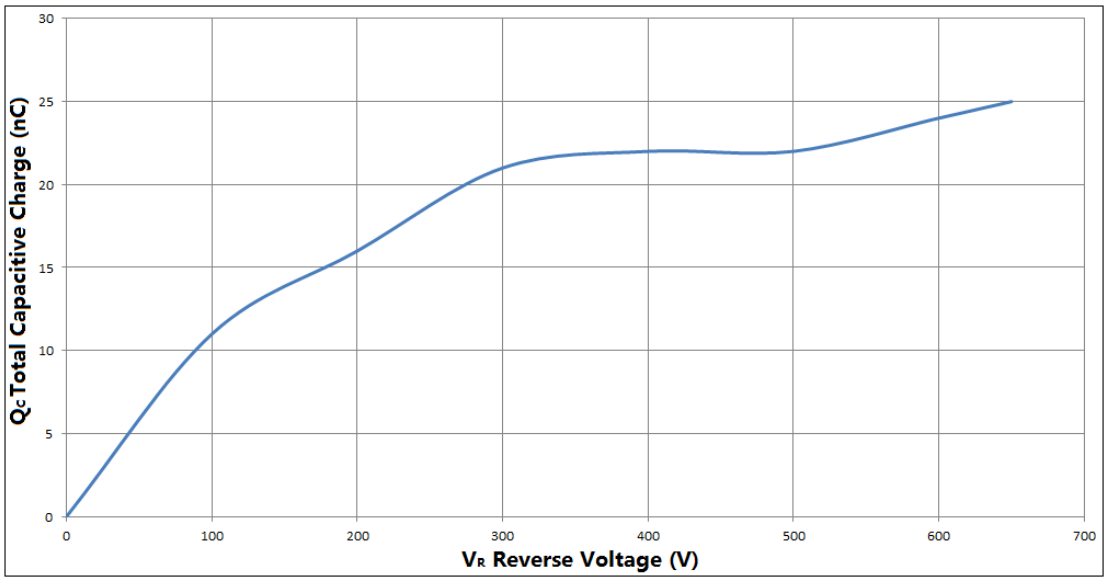


Figure 3. Total Capacitive Charge vs. Reverse Voltage

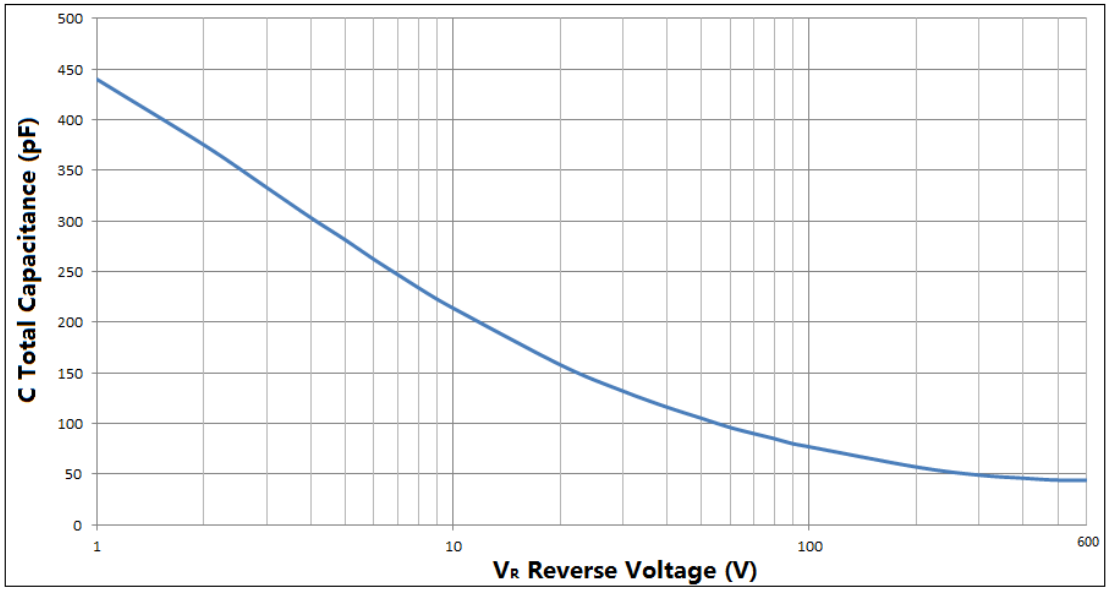


Figure 4. Total Capacitance vs. Reverse Voltage

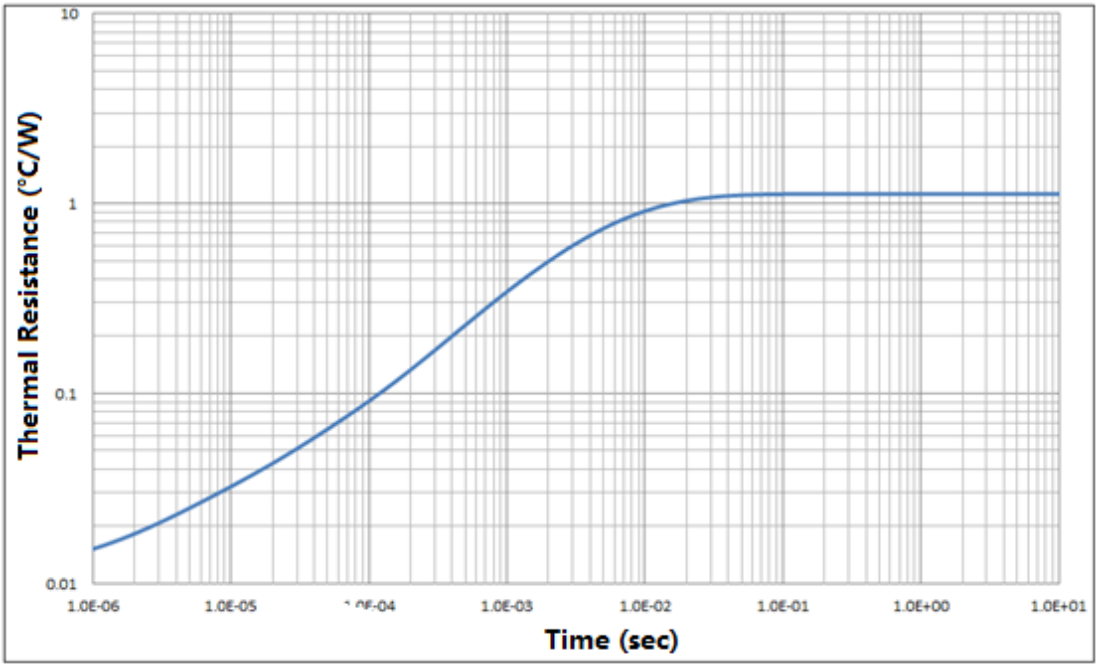
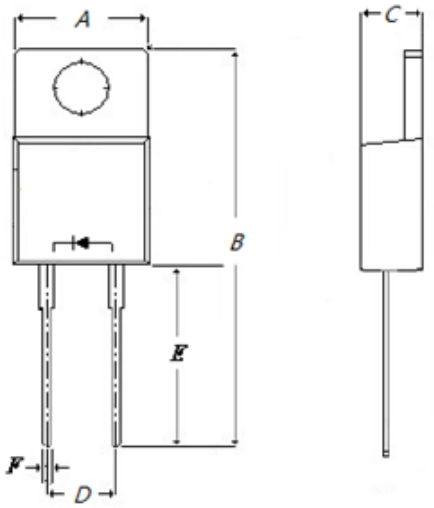


Figure 5. Transient Thermal Impedance

Package TO-220



Symbol	Min. (mm)	Typ. (mm)	Max. (mm)
A	9.17	10.08	10.91
B	27.00	28.58	30.00
C	3.89	4.50	5.00
D	4.20	5.10	5.80
E	11.70	13.30	14.97
F	0.50	0.80	1.21