

Features

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

V_{RRM}	=	650	V
$I_F (T_C \leq 135^\circ\text{C})$	=	35	A
Q_C	=	66	nC

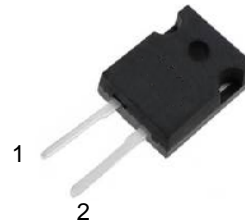
Benefits

- 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

Package



TO-247-2



Part Number	Package	Marking
AS3D030065C	TO-247-2	ASD3065C

Maximum Ratings

Symbol	Parameter	Value	Unit	Test Conditions	Note
V _{RRM}	Repetitive Peak Reverse Voltage	650	V	T _C = 25°C	
V _{RSM}	Surge Peak Reverse Voltage	650	V	T _C = 25°C	
V _R	DC Blocking Voltage	650	V	T _C = 25°C	
I _F	Forward Current	35 30	A	T _C ≤ 135°C T _C ≤ 143°C	Fig.3
I _{FSM}	Non-Repetitive Forward Surge Current	210	A	T _C = 25°C, t _p = 8.3ms, Half Sine Wave	
P _{tot}	Power Dissipation	234	W	T _C = 25°C	Fig.4
T _C	Maximum Case Temperature	143	°C		
T _J , T _{STG}	Operating Junction and Storage Temperature	-55 to 175	°C		
	TO-247-2 Mounting Torque	1	Nm	M3 Screw	

Electrical Characteristics

Symbol	Parameter	Typ.	Max.	Unit	Test Conditions	Note
V _F	Forward Voltage	1.5 1.78	1.8 2.3	V	I _F = 30A, T _J = 25°C I _F = 30A, T _J = 175°C	Fig.1
I _R	Reverse Current	2 15	20 200	μA	V _R = 650V, T _J = 25°C V _R = 650V, T _J = 175°C	Fig.2
C	Total Capacitance	1805 176 145	/	pF	V _R = 0V, T _J = 25°C, f = 1MHz V _R = 200V, T _J = 25°C, f = 1MHz V _R = 400V, T _J = 25°C, f = 1MHz	Fig.6
Q _C	Total Capacitive Charge	66	/	nC	V _R = 650V, I _F = 30A di/dt = 200A/μs, T _J = 25°C	Fig.5

Thermal Characteristics

Symbol	Parameter	Typ.	Unit	Note
R _{θJC}	Thermal Resistance from Junction to Case	0.64	°C/W	Fig.7
R _{θJA}	Thermal Resistance from Junction to Ambient	80	°C/W	
T _{sold}	Soldering Temperature	260	°C	

Typical Performance

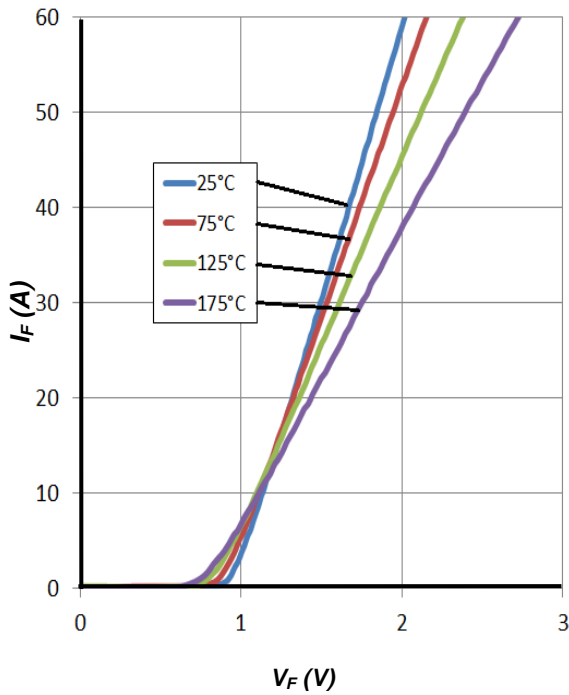


Figure 1. Forward Characteristics

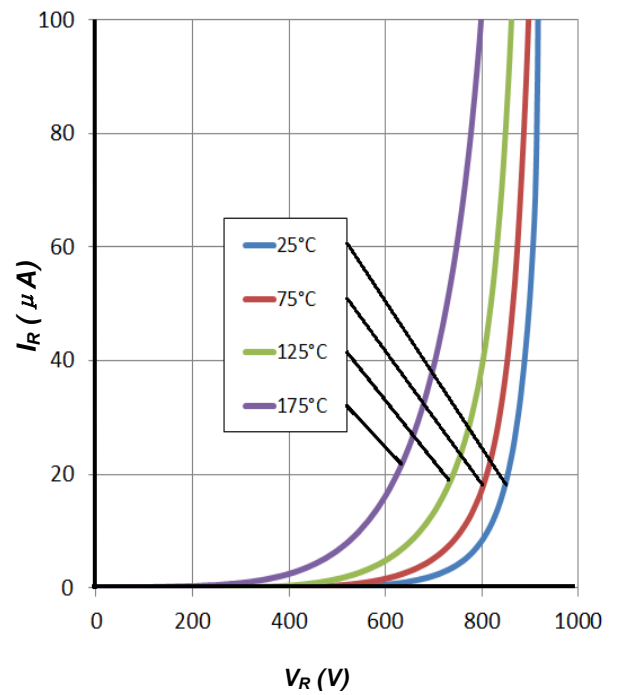


Figure 2. Reverse Characteristics

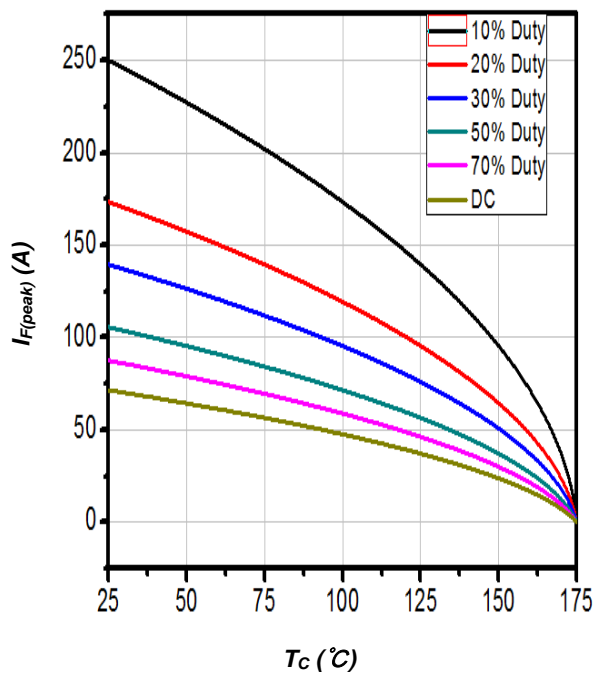


Figure 3. Current Derating

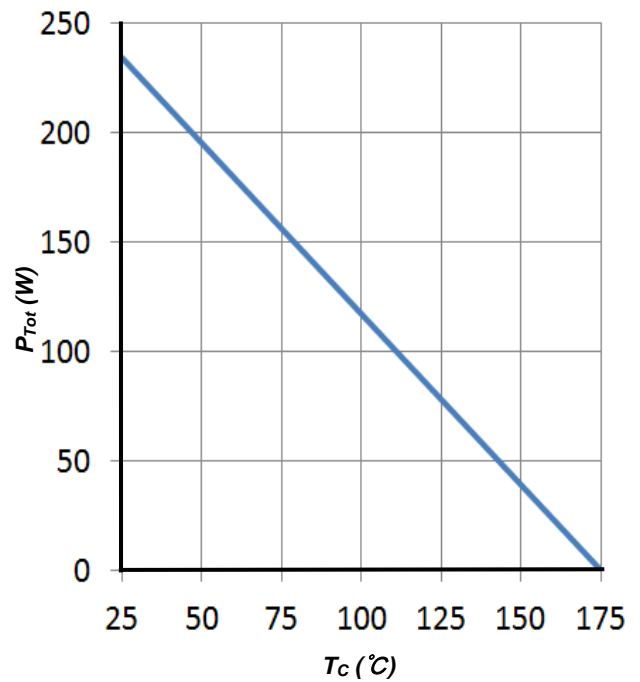


Figure 4. Power Derating

Typical Performance

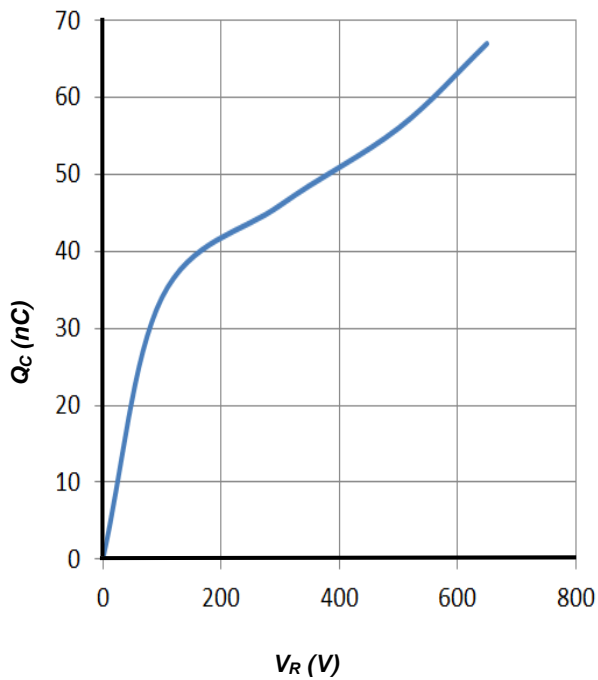


Figure 5. Total Capacitive Charge vs. Reverse

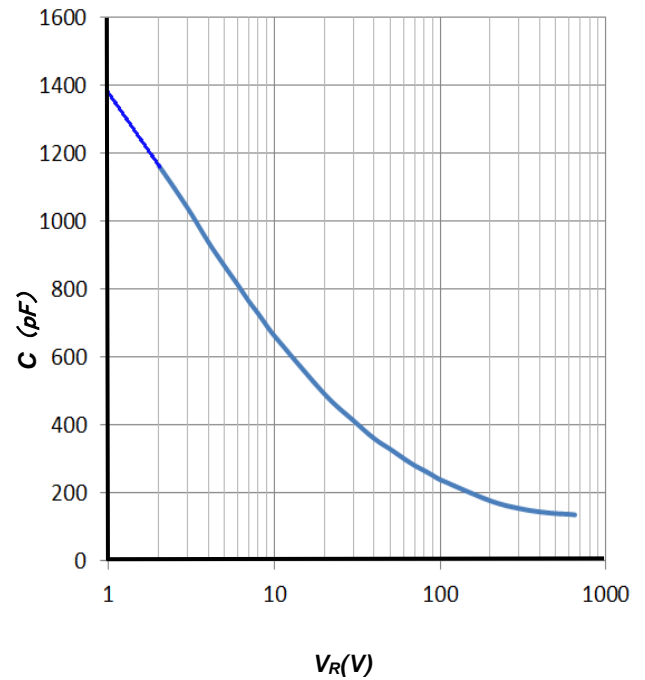


Figure 6. Total Capacitance vs. Reverse Voltage

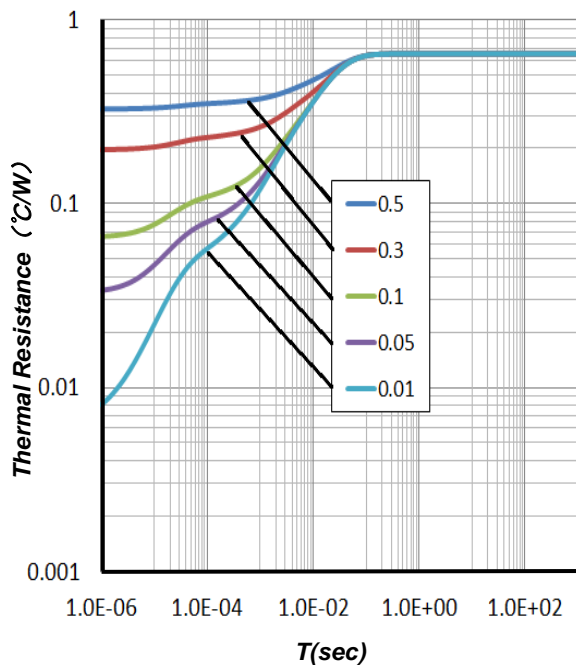
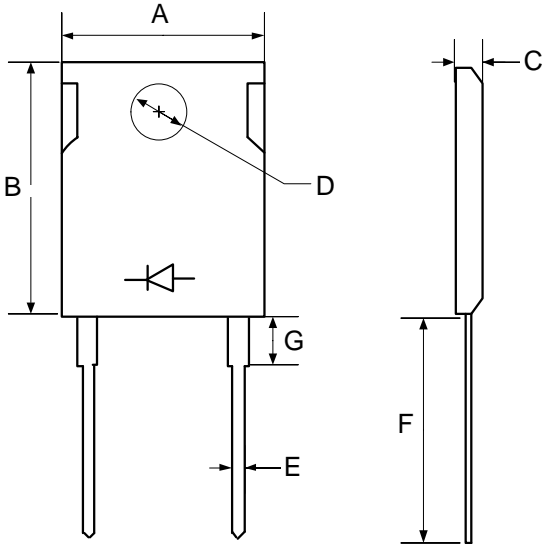


Figure 7. Transient Thermal Impedance

Package Dimensions

Package TO-247-2



Symbol	Min. (mm)	Typ. (mm)	Max. (mm)
A	14.18	15.75	17.33
B	18.45	20.5	22.55
C	4.50	5.00	5.50
D	3.15	3.50	3.85
E	1.08	1.20	1.32
F	18.27	20.30	22.33
G	4.21	4.68	5.15

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