

Features

- ◆ Zero Reverse Recovery Current
- ◆ Zero Forward Recovery Voltage
- ◆ Positive Temperature Coefficient on V_F
- ◆ Temperature-independent Switching
- ◆ 175°C Operating Junction Temperature
- ◆ Suffix "-H" indicates Halogen free parts, ex. AS1D025170P-H

V_{RRM}	=	1700 V
$I_F(T_c \leq 135^\circ\text{C})$	=	26 A
Q_c	=	82 nC

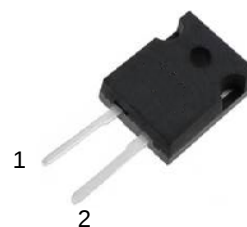
Benefits

- ◆ 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
AS1D025170P	TO-247-2	AS1D025170P

Maximum ratings

Symbol	Parameter	Value	Unit	Test Conditions	Note
V_{RRM}	Repetitive Peak Reverse Voltage	1700	V	$T_C = 25^{\circ}\text{C}$	
V_{RSM}	Surge Peak Reverse Voltage	1700	V	$T_C = 25^{\circ}\text{C}$	
V_R	DC Blocking Voltage	1700	V	$T_C = 25^{\circ}\text{C}$	
I_F	Forward Current	26	A	$T_C \leq 135^{\circ}\text{C}$	
I_{FSM}	Non-Repetitive Forward Surge Current	120	A	$T_C = 25^{\circ}\text{C}$, $t_p = 8.3\text{ms}$, Half Sine Wave	
P_{tot}	Power Dissipation	375	W	$T_C = 25^{\circ}\text{C}$	Fig.3
T_C	Maximum Case Temperature	135	$^{\circ}\text{C}$		
T_J, T_{STG}	Operating Junction and Storage Temperature	-55 to 175	$^{\circ}\text{C}$		
	TO-247-2 Mounting Torque	1	Nm	M3 Screw	

Electrical Characteristics

Symbol	Parameter	Typ.	Max.	Unit	Test Conditions	Note
V_F	Forward Voltage	1.6 2.6	1.8 4.0	V	$I_F = 25\text{A}$, $T_J = 25^{\circ}\text{C}$ $I_F = 25\text{A}$, $T_J = 175^{\circ}\text{C}$	Fig.1
I_R	Reverse Current	2 20	50 400	μA	$V_R = 1700\text{V}$, $T_J = 25^{\circ}\text{C}$ $V_R = 1700\text{V}$, $T_J = 175^{\circ}\text{C}$	Fig.2
C	Total Capacitance	1700 95	/	pF	$V_R = 0\text{V}$, $T_J = 25^{\circ}\text{C}$, $f = 1\text{MHz}$ $V_R = 800\text{V}$, $T_J = 25^{\circ}\text{C}$, $f = 1\text{MHz}$	Fig.5
Q_C	Total Capacitive Charge	82	/	nC	$V_R = 1200\text{V}$, $I_F = 25\text{A}$ $di/dt = 200\text{A}/\mu\text{s}$, $T_J = 25^{\circ}\text{C}$	Fig.4

Thermal Characteristics

Symbol	Parameter	Typ.	Unit	Note
$R_{\theta JC}$	Thermal Resistance from Junction to Case	0.4	$^{\circ}\text{C}/\text{W}$	Fig.6

Typical Performance

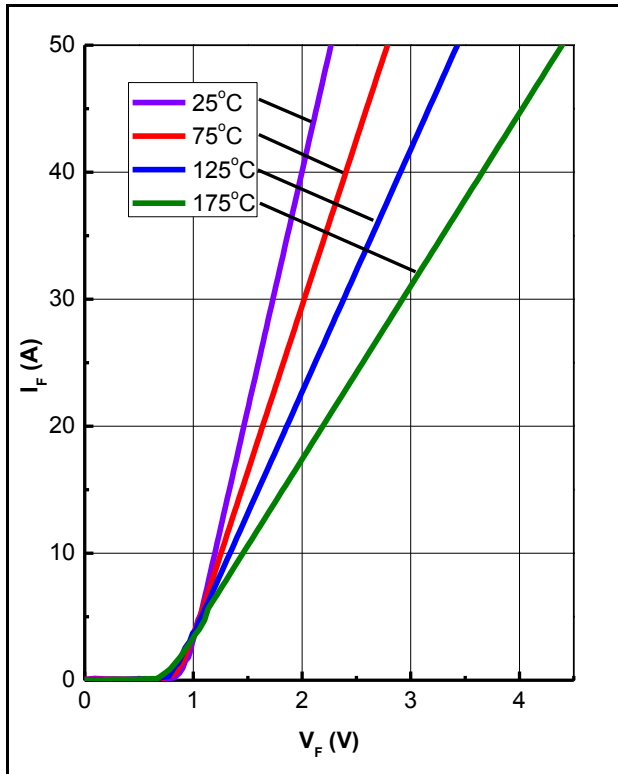


Figure 1. Forward Characteristics

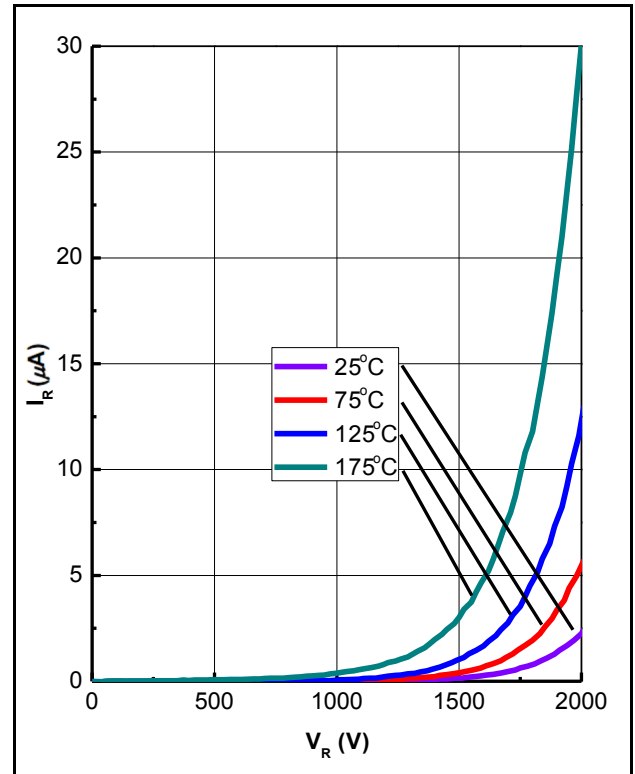


Figure 2. Reverse Characteristics

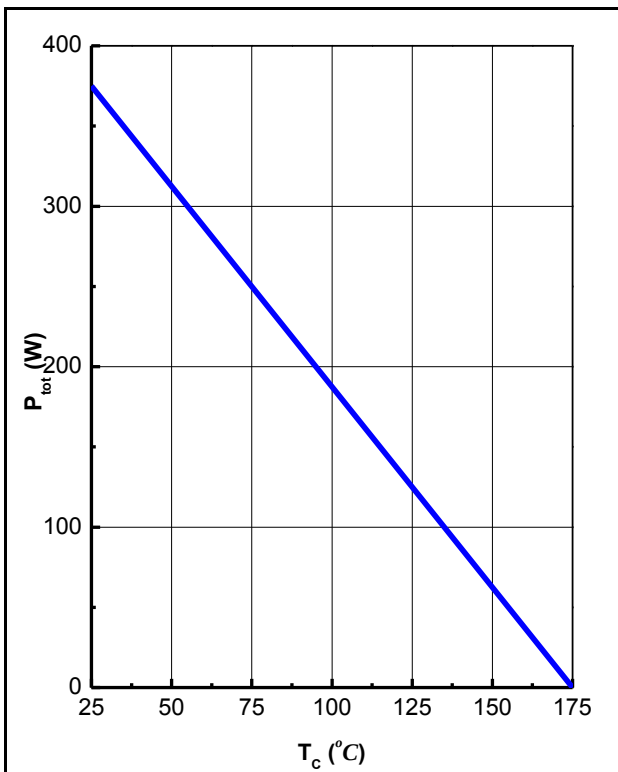


Figure 3. Power Derating

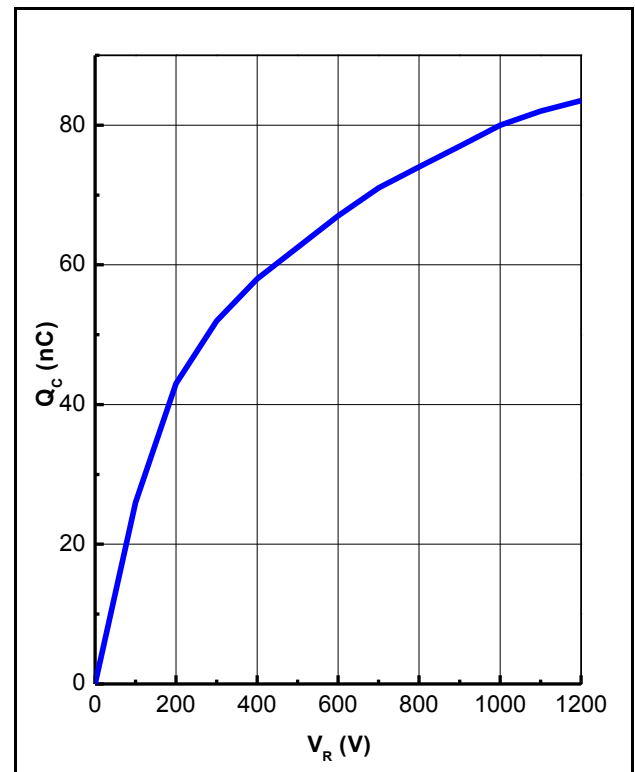


Figure 4. Total Capacitive Charge vs. Reverse Voltage

Typical Performance

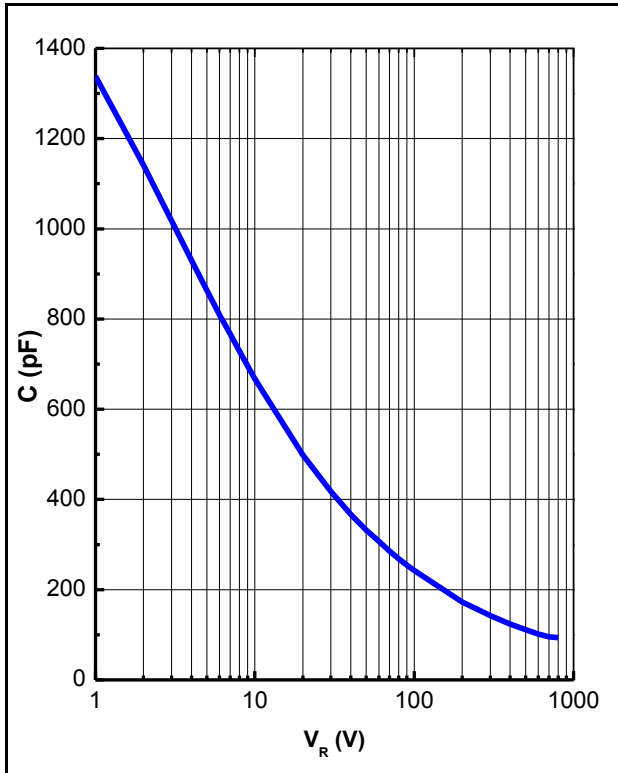


Figure 5. Total Capacitance vs. Reverse Voltage

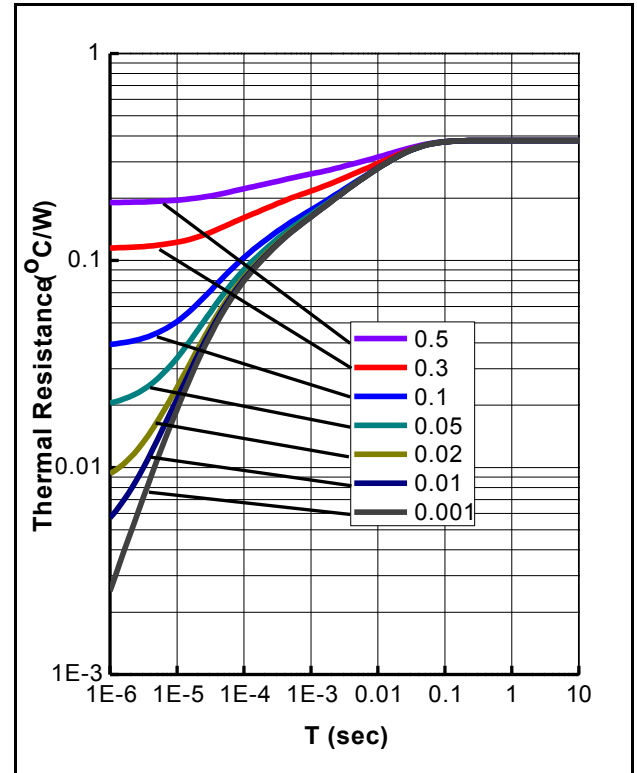
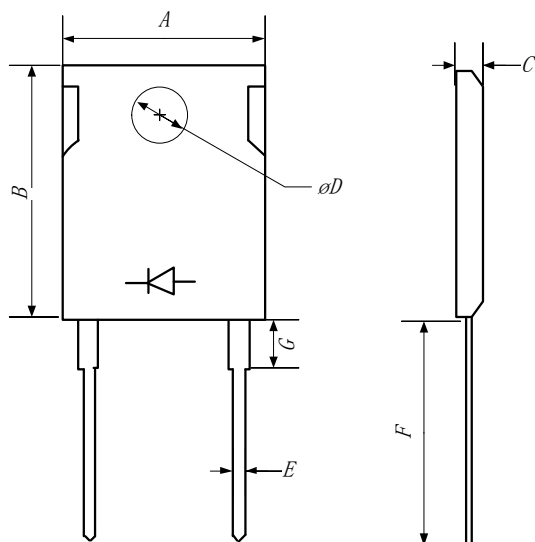


Figure 6. Transient Thermal Impedance

Package Outlines

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