

Features

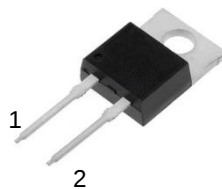
- New Thin Wafer Technology
- Low Forward Voltage Drop (V_F)
- Zero Reverse Recovery Current
- Zero Forward Recovery Voltage
- Positive Temperature Coefficient on V_F
- Temperature-independent Switching

V_{RRM}	=	1200	V
$I_F (T_C \leq 142^\circ\text{C})$	=	15	A
Q_C	=	37	nC

Benefits

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

Package



TO-220-2

Applications

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



Part Number	Package	Marking
AS4D015120A	TO-220-2	AS4D015120A

Maximum Ratings

Symbol	Parameter	Value	Unit	Test Conditions	Note
V_{RRM}	Repetitive Peak Reverse Voltage	1200	V	$T_C = 25^{\circ}\text{C}$	
V_{RSM}	Surge Peak Reverse Voltage	1200	V	$T_C = 25^{\circ}\text{C}$	
V_R	DC Blocking Voltage	1200	V	$T_C = 25^{\circ}\text{C}$	
I_F	Forward Current	30 17 15	A	$T_C \leq 25^{\circ}\text{C}$ $T_C \leq 135^{\circ}\text{C}$ $T_C \leq 142^{\circ}\text{C}$	
I_{FSM}	Non-Repetitive Forward Surge Current	135	A	$T_C = 25^{\circ}\text{C}$, $t_p = 8.3\text{ms}$, Half Sine Wave	
P_{tot}	Power Dissipation	166	W	$T_C = 25^{\circ}\text{C}$	Fig.3
T_J, T_{STG}	Operating Junction and Storage Temperature	-55 to 175	$^{\circ}\text{C}$		
T_{sold}	Soldering Temperature	260	$^{\circ}\text{C}$		
	Mounting Torque	1	Nm	M3 Screw	

Electrical Characteristics

Symbol	Parameter	Typ.	Max.	Unit	Test Conditions	Note
V_F	Forward Voltage	1.45 2.0	1.8 /	V	$I_F = 15\text{A}$, $T_J = 25^{\circ}\text{C}$ $I_F = 15\text{A}$, $T_J = 175^{\circ}\text{C}$	Fig.1
I_R	Reverse Current	8 40	100 500	μA	$V_R = 1200\text{V}$, $T_J = 25^{\circ}\text{C}$ $V_R = 1200\text{V}$, $T_J = 175^{\circ}\text{C}$	Fig.2
C	Total Capacitance	880 64 47	/	pF	$V_R = 0.1\text{V}$, $T_J = 25^{\circ}\text{C}$, $f = 1\text{MHz}$ $V_R = 400\text{V}$, $T_J = 25^{\circ}\text{C}$, $f = 1\text{MHz}$ $V_R = 800\text{V}$, $T_J = 25^{\circ}\text{C}$, $f = 1\text{MHz}$	Fig.5
Q_C	Total Capacitive Charge	37	/	nC	$V_R = 800\text{V}$, $I_F = 15\text{A}$ $di/dt = 200\text{A}/\mu\text{s}$, $T_J = 25^{\circ}\text{C}$	Fig.4

Thermal Characteristics

Symbol	Parameter	Typ.	Unit	Note
$R_{\theta JC}$	Thermal Resistance from Junction to Case	0.9	$^{\circ}\text{C}/\text{W}$	Fig.6
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	80	$^{\circ}\text{C}/\text{W}$	

Electrical Characteristic Curves

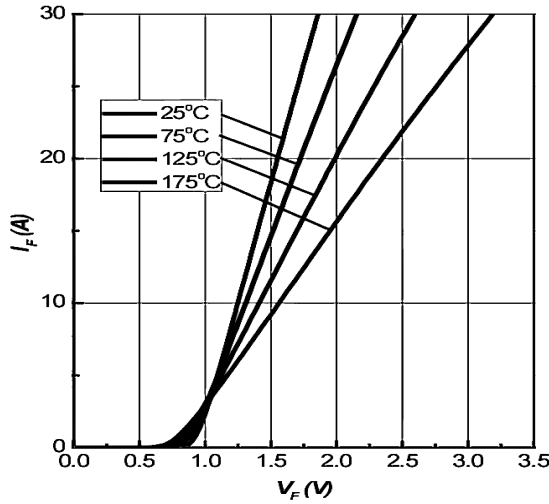


Figure 1. Forward Characteristics

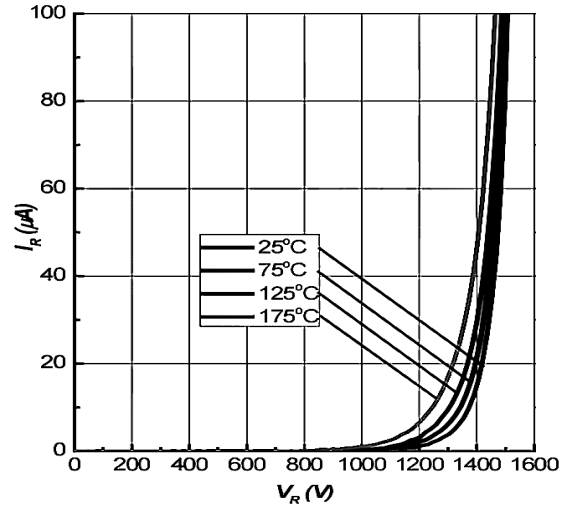


Figure 2. Reverse Characteristics

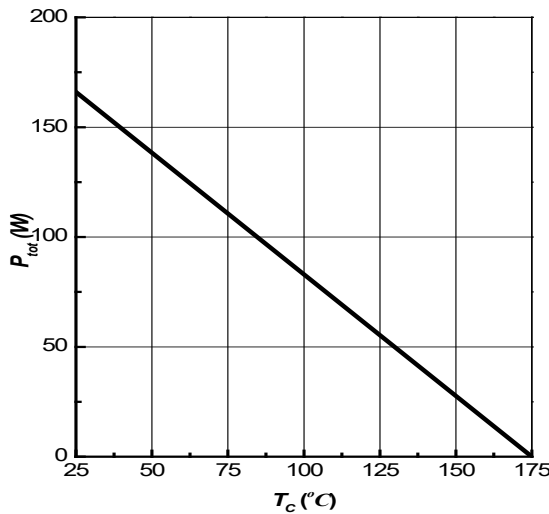


Figure 3. Power Derating

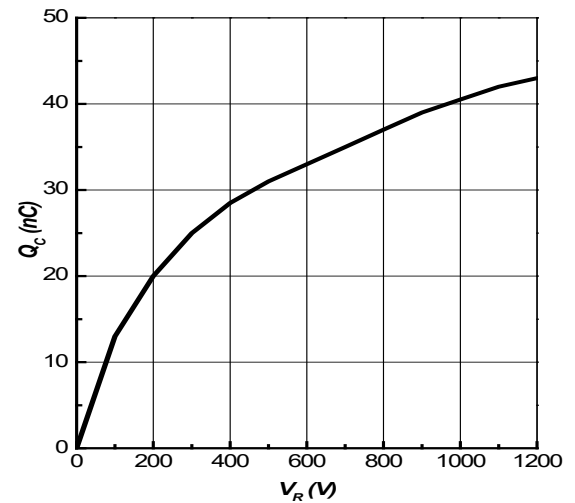


Figure 4. Total Capacitive Charge vs. Reverse Voltage

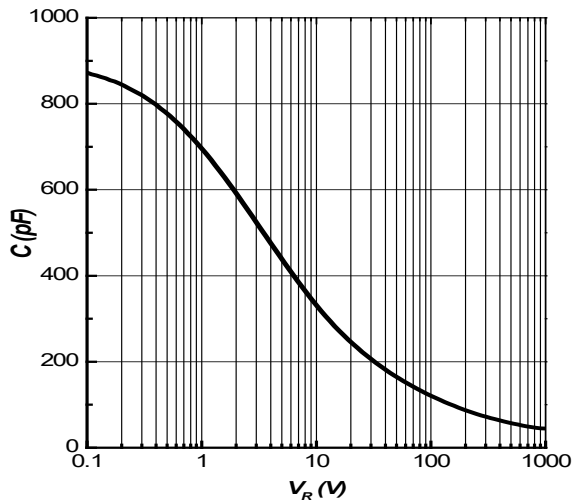


Figure 5. Total Capacitance vs. Reverse Voltage

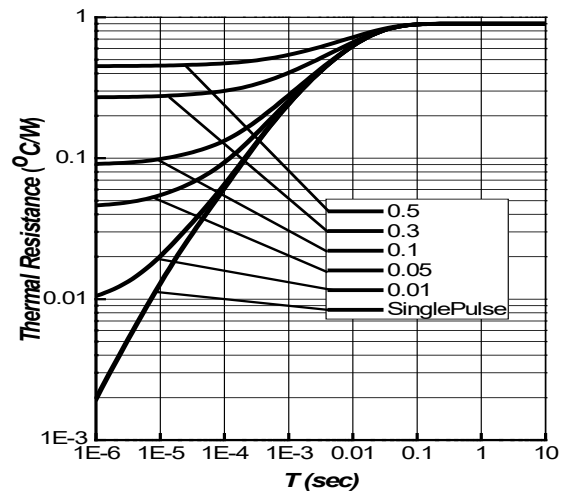
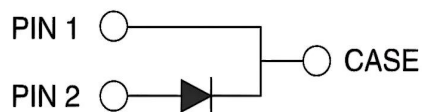
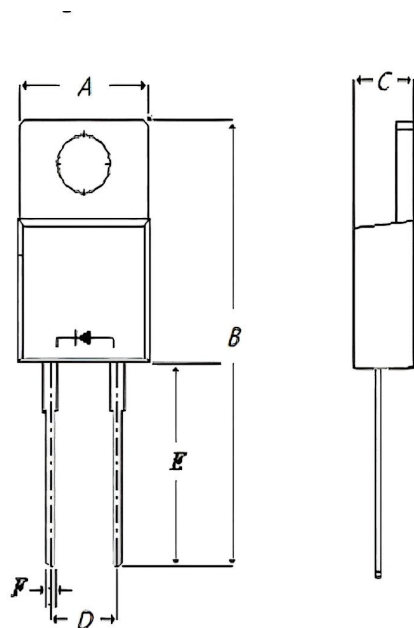


Figure 6. Transient Thermal Impedance

TO-220-2 Package Dimensions



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