

Features

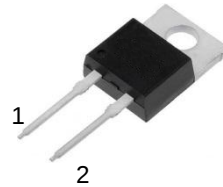
- Low reverse current
- Good surge current capability
- Low capacitive charge
- No reverse recovery current

V_{RRM}	=	1200	V
$I_F (T_C=157^{\circ}C)$	=	10	A
Q_C	=	48	nC

Benefits

- System efficiency improvement over Si diodes
- Higher switching frequency
- Increased power density
- Essentially no switching losses

Package



TO-220-2

Applications

- Switch mode power supplies (SMPS)
- Uninterruptible power supplies
- On Board Charger
- UPS



Part Number	Package	Marking
ASZD010120A	TO-220-2	ASZD010120A

Maximum Ratings (T_c=25°C unless otherwise noted)

Symbol	Parameter	Test conditions	Value	Unit
V _{RRM}	Repetitive peak reverse voltage		1200	V
V _{RSM}	Non-repetitive peak reverse voltage		1200	V
I _F	Continuous forward current	T _C =25°C T _C =135°C T _C =157°C	30 15 10	A
I _{FRM}	Repetitive forward surge current	T _C =25°C, t _p =10ms, Half Sine Pulse T _C =110°C, t _p =10ms, Half Sine Pulse	57 41.5	A
I _{FSM}	Non-Repetitive forward surge current	T _C =25°C, t _p =10ms, Half Sine Pulse T _C =110°C, t _p =10ms, Half Sine Pulse	90 69.5	A
∫i ² dt	i ² t value	T _C =25°C, t _p =10ms, Half Sine Pulse T _C =110°C, t _p =10ms, Half Sine Pulse	40.5 24	A ² S
P _{tot}	Power dissipation	T _C =25°C T _C =110°C	115 50	W
T _j	Operating junction temperature		-55~175	°C
T _{stg}	Storage temperature		-55~175	°C

Electrical Characteristics (T_j=25°C unless otherwise specified)

Static Characteristics

Symbol	Parameter	Test conditions	Value			Unit
			Min.	Typ.	Max.	
V _{DC}	DC blocking voltage	T _j =25°C	1200			V
V _F	Diode forward voltage	I _F =10A T _j =25°C I _F =10A T _j =175°C		1.4 2.0	1.7	V
I _R	Reverse current	V _R =1200V T _j =25°C V _R =1200V T _j =175°C			100 200	μA

AC Characteristics

Symbol	Parameter	Test conditions	Value			Unit
			Min.	Typ.	Max.	
Q _C	Total capacitive charge	V _R =800V T _j =25°C $Q_C = \int_0^{V_R} C(V)dV$		48		nC
C	Total capacitance	V _R =0V f=1MHz V _R =400V f=1MHz V _R =800V f=1MHz		695 46 35		pF

Thermal Characteristics

Symbol	Parameter	Value			Unit
		Min.	Typ.	Max.	
R _{th(jc)}	Thermal resistance from junction to case		1.3		°C/W

Electrical Characteristic Curves

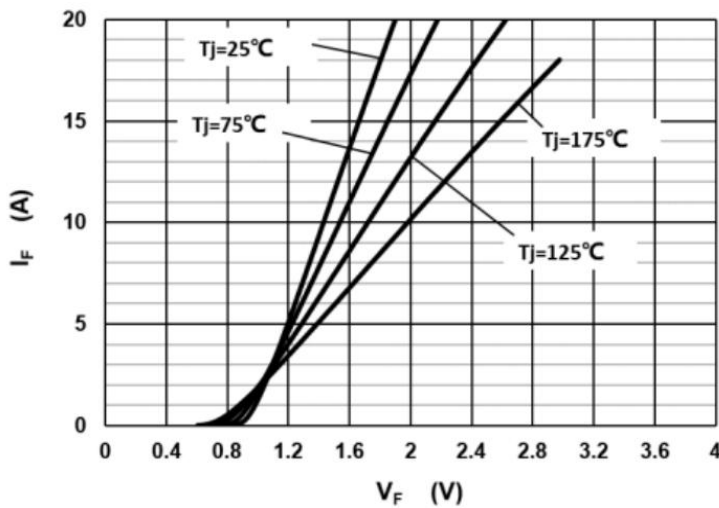


Figure 1. Typical forward characteristics

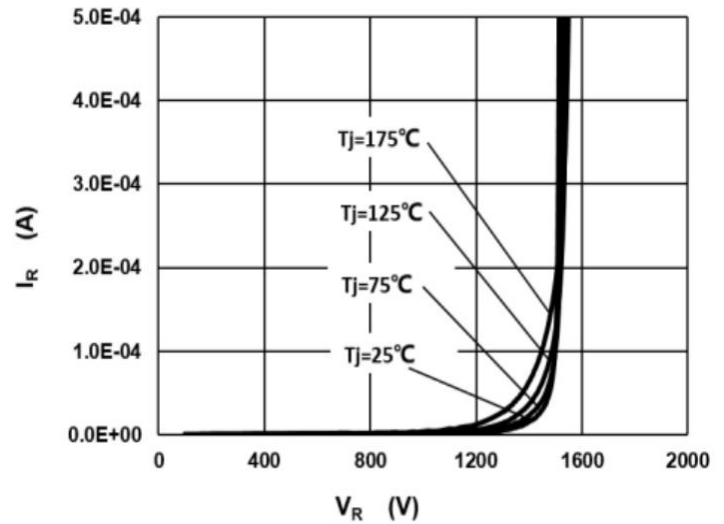


Figure 2. Typical reverse current as function of reverse voltage

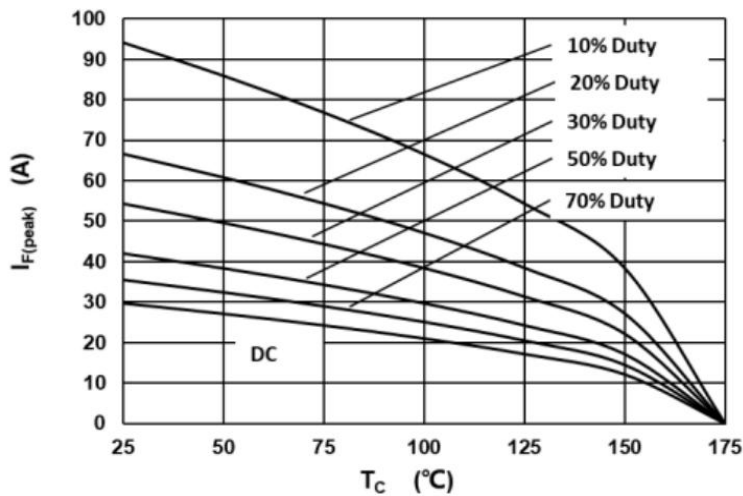


Figure 3. Diode forward current as function of temperature, D=duty cycle

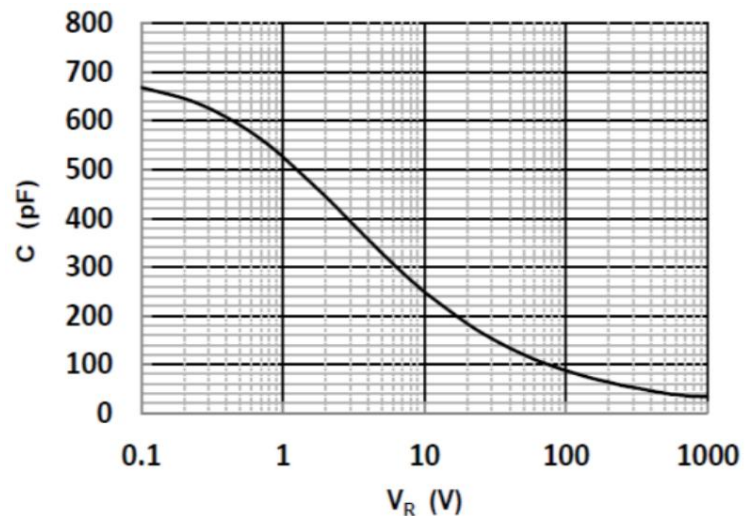


Figure 4. Typical capacitance as function of reverse voltage, $C=f(V_R)$; $T_J=25^\circ\text{C}$

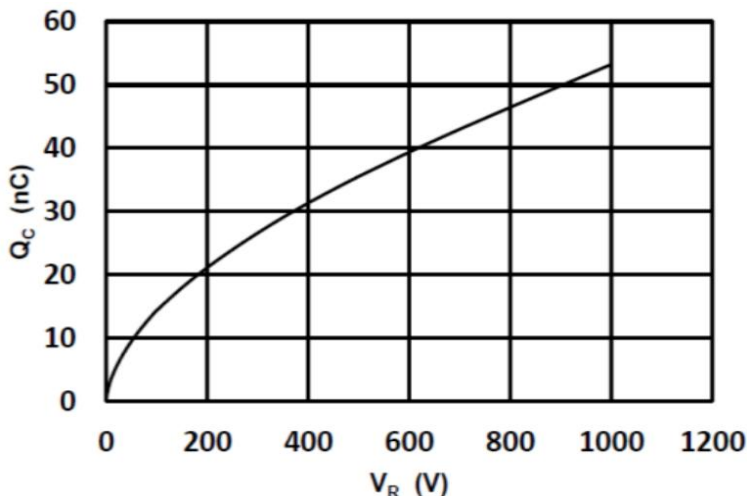


Figure 5. Typical reverse charge as function of reverse voltage

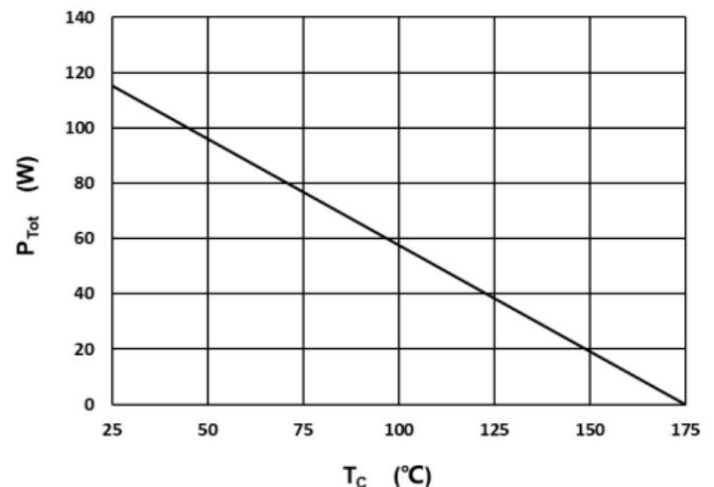


Figure 6. Power dissipation as function of case temperature

Electrical Characteristic Curves

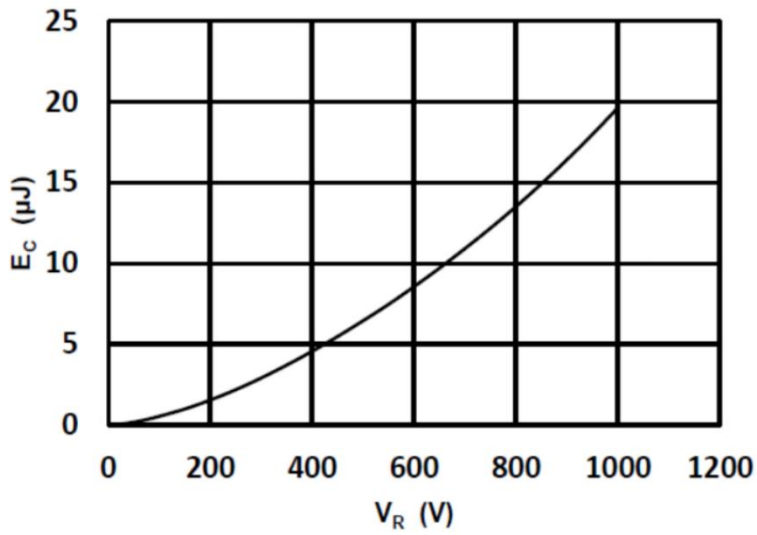


Figure 7. Capacitance stored energy

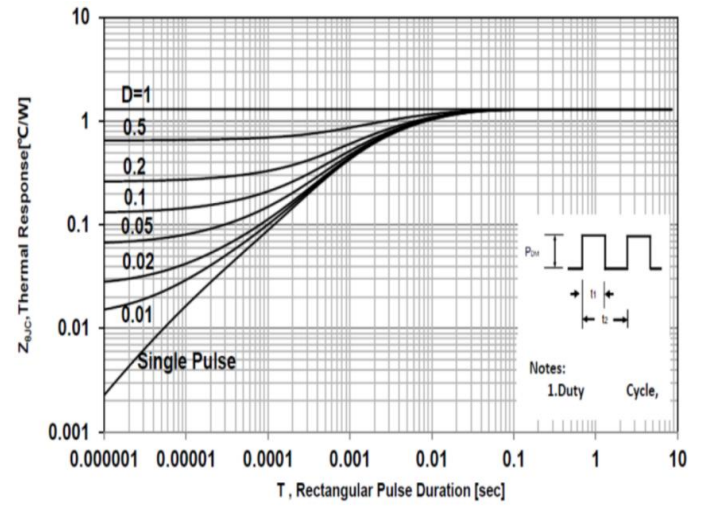
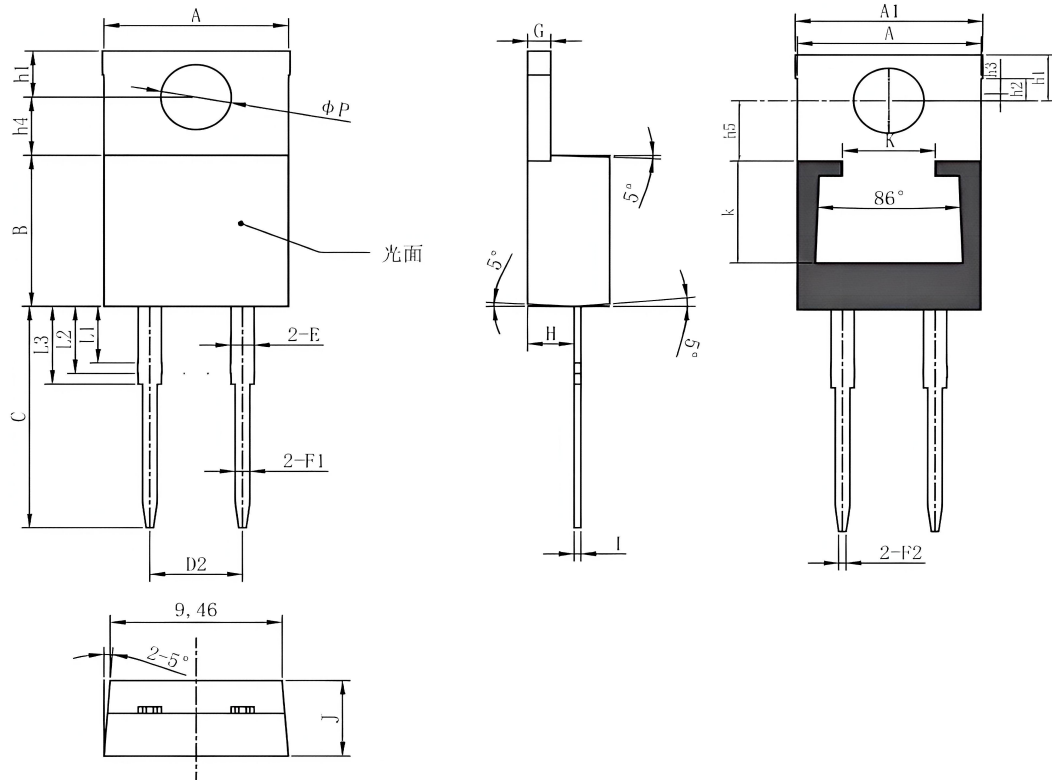


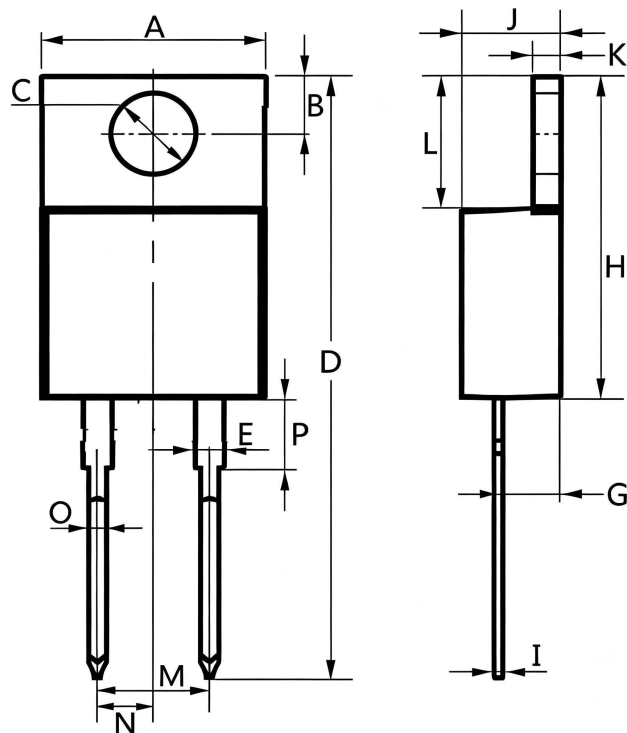
Figure 8. Max. transient thermal impedance

TO-220-2 Package Dimensions (View 1)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	10.000	10.200	0.394	0.402
A1	10.100	10.500	0.398	0.413
A2	9.800	10.00	0.386	0.394
B	8.800	9.200	0.346	0.362
C	12.800	13.400	0.504	0.528
D2	5.080 Typ		0.200 Typ	
E	1.270	1.400	0.050	0.055
F1	0.750	0.850	0.030	0.033
G	1.260	1.280	0.050	0.050
H	2.400	2.700	0.094	0.106
h1	2.700	2.800	0.106	0.110
h2	1.270	1.370	0.050	0.054
h3	0.400	0.450	0.016	0.018
h4	3.400	3.500	0.134	0.138
h5	3.600	3.650	0.142	0.144
I	0.350	0.450	0.014	0.018
J	4.450	4.600	0.175	0.181
K	4.900	5.100	0.193	0.201
k	6.000	6.050	0.236	0.238
L1	3.300	3.500	0.130	0.138
L2	3.900	4.100	0.154	0.161
L3	4.500	4.700	0.177	0.185
φ P	3.750	3.900	0.148	0.154

TO-220-2 Package Dimensions (View 2)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	10.150	10.350	0.400	0.407
B	2.650	2.950	0.104	0.116
C	3.700	3.900	0.146	0.154
D	28.500	29.500	1.122	1.161
E	1.300	1.450	0.051	0.057
G	2.900	3.300	0.114	0.130
H	15.000	16.000	0.591	0.630
I	0.380	0.420	0.015	0.017
J	4.450	4.550	0.175	0.179
K	1.250	1.350	0.049	0.053
L	6.350	6.550	0.250	0.258
M	5.080 Typ		0.200 Typ	
N	2.540 Typ		0.100 Typ	
O	0.760	0.840	0.030	0.033
P	3.100	3.300	0.122	0.130