

Features

- Zero or negligible reverse recovery
- Low forward voltage
- Positive temperature coefficient
- Extended surge current capability
- High junction temperature
- Temperature invariant switching behavior

V_{RRM}	=	1200	V
$I_F (T_C=155^{\circ}C)$	=	20	A
$Q_C (V_R=800V)$	=	110	nC

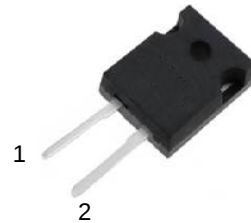
Benefits

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

Applications

- Solar inverters
- Motor drivers
- Power Factor Correction
- SMPS

Package



TO-247-2



Part Number	Package	Marking
ASYD020120C	TO-247-2	ASYD020120C

Electrical Specifications ($T_C=25^{\circ}\text{C}$, unless otherwise specified.)

Symbol	Parameter	Test Condition	Min	Typ	Max	Unit
V_R	Reverse Blocking Voltage	$I_R=250\mu\text{A}$	1200			V
I_R	Reverse Current	$V_R=1200\text{V}$ $T_J=25^{\circ}\text{C}$ $T_J=175^{\circ}\text{C}$		0.5 10	100 200	μA
V_F	Forward Voltage	$I_F=20\text{A}$ $T_J=25^{\circ}\text{C}$ $T_J=175^{\circ}\text{C}$		1.5 2.3	1.7 2.7	V

Note: All characteristics are tested with the parts assembled in TO-247-2 package.

Dynamic Characteristics ($T_C=25^{\circ}\text{C}$, unless otherwise specified.)

Symbol	Parameter	Test Condition	Min	Typ	Max	Unit
C	Typical Junction Capacitance	$V_R=0.1\text{V}$, $f=1\text{MHz}$ $V_R=400\text{V}$, $f=1\text{MHz}$ $V_R=800\text{V}$, $f=1\text{MHz}$		1420 100 89		pF
Q_C	Total Capacitive Charge	$V_R=400\text{V}$ $V_R=800\text{V}$		73 110		nC
E_C	Capacitive Stored Energy,	$V_R=400\text{V}$ $V_R=800\text{V}$		8.5 29		μJ

Note: All characteristics are tested with the parts assembled in TO-247-2 package.

Thermal Resistances ($T_C=25^{\circ}\text{C}$, unless otherwise specified.)

Symbol	Parameter	Min	Typ	Max	Unit
$R_{th(j-c)}$	Thermal Resistance, Junction – Case		0.46	0.52	K/W
$R_{th(j-a)}$	Thermal Resistance, Junction – Ambient		31.8		K/W

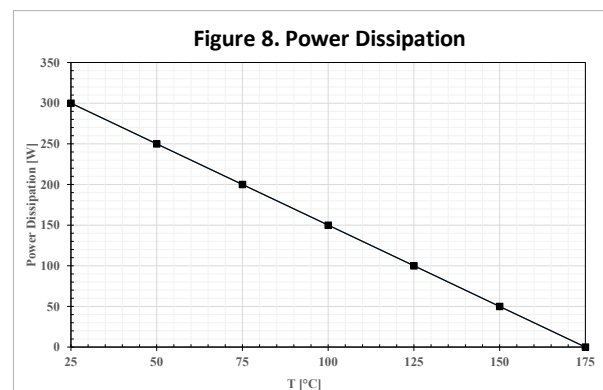
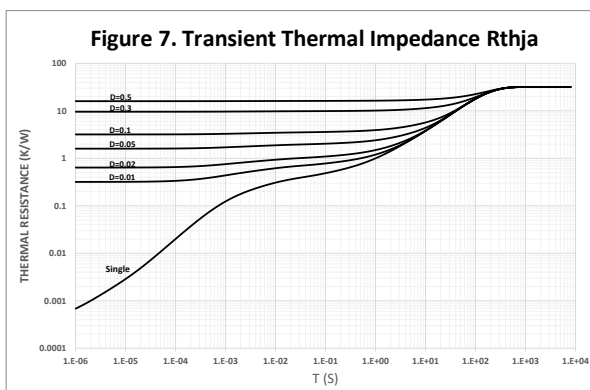
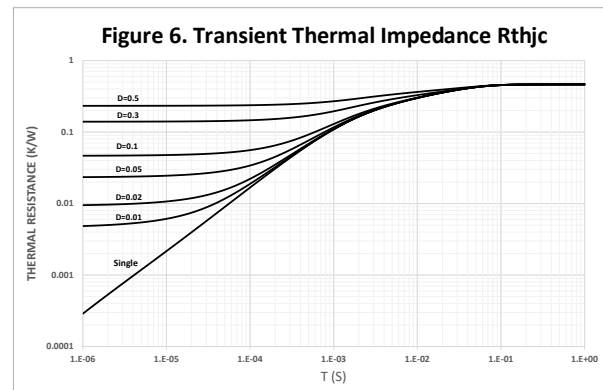
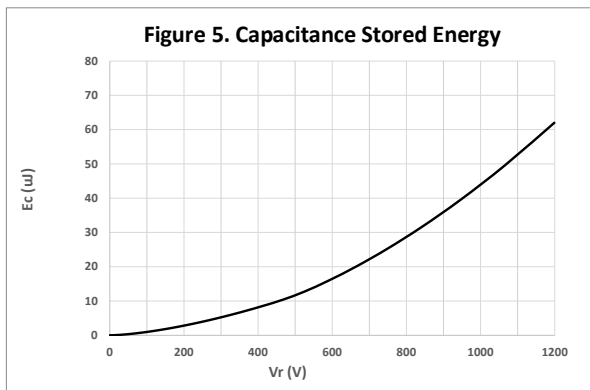
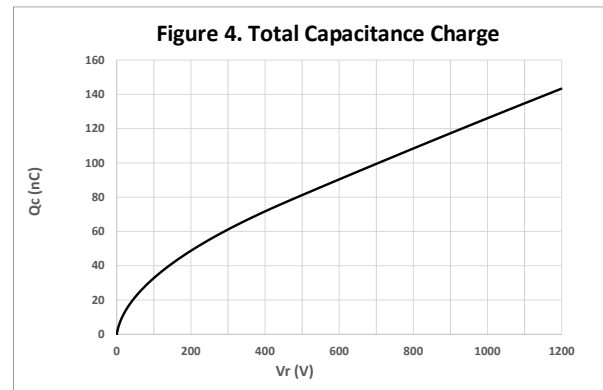
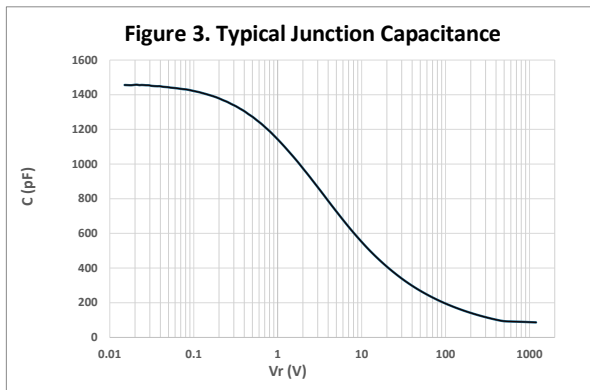
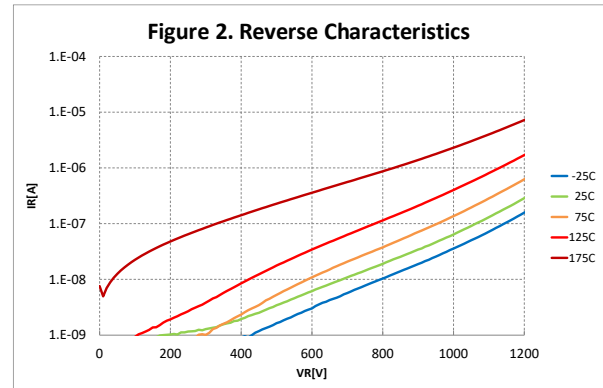
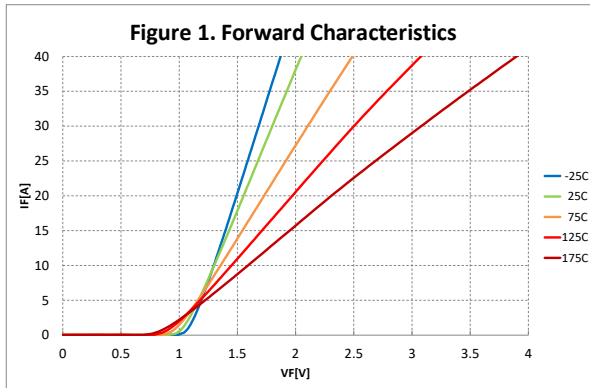
Note: All characteristics are tested with the parts assembled in TO-247-2 package.

Absolute Maximum Ratings (T_C=25°C, unless otherwise specified.)

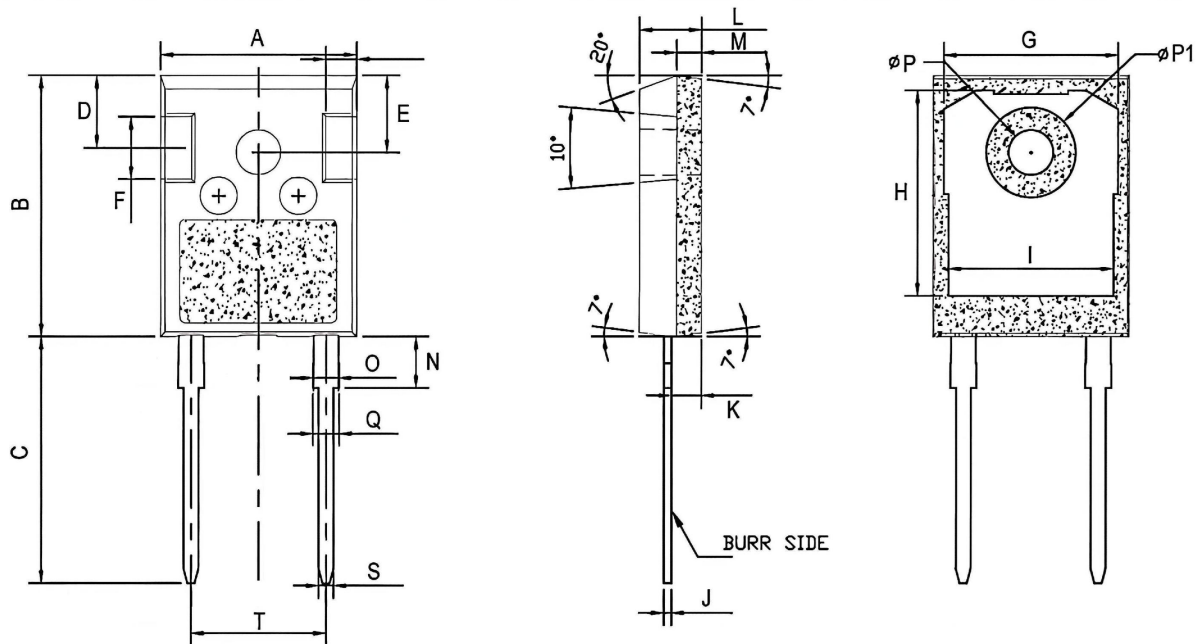
Symbol	Parameter	Rating
V _{RRM}	Repetitive Peak Reverse Voltage	1200 V
I _F	Continuous Forward Current T _C =25 °C, D=1 T _C =100 °C, D=1 T _C =155 °C, D=1	63.5 A 44 A 20 A
I _{FSM}	Non-Repetitive Forward Surge Current T _C =25 °C, t _p =10ms T _C =125 °C, t _p =10ms	274 A 156 A
I _{FRM}	Repetitive Forward Surge Current T _C =25 °C, t _p =10ms T _C =125 °C, t _p =10ms	109 A 61 A
P _{TOT}	Power dissipation for R _{th(j-c,max)} , T _C =25 °C	300 W
EAS	Avalanche energy, T _J = 25°C, L = 0.5 mH, V = 50 V	315 mJ
T _j , T _{stg}	Operating and Storage Temperature	-55°C to 175°C

Note: All characteristics are tested with the parts assembled in TO-247-2 package , and exposure to absolute maximum ratings for prolonged time periods may affect device reliability.

Typical Performance

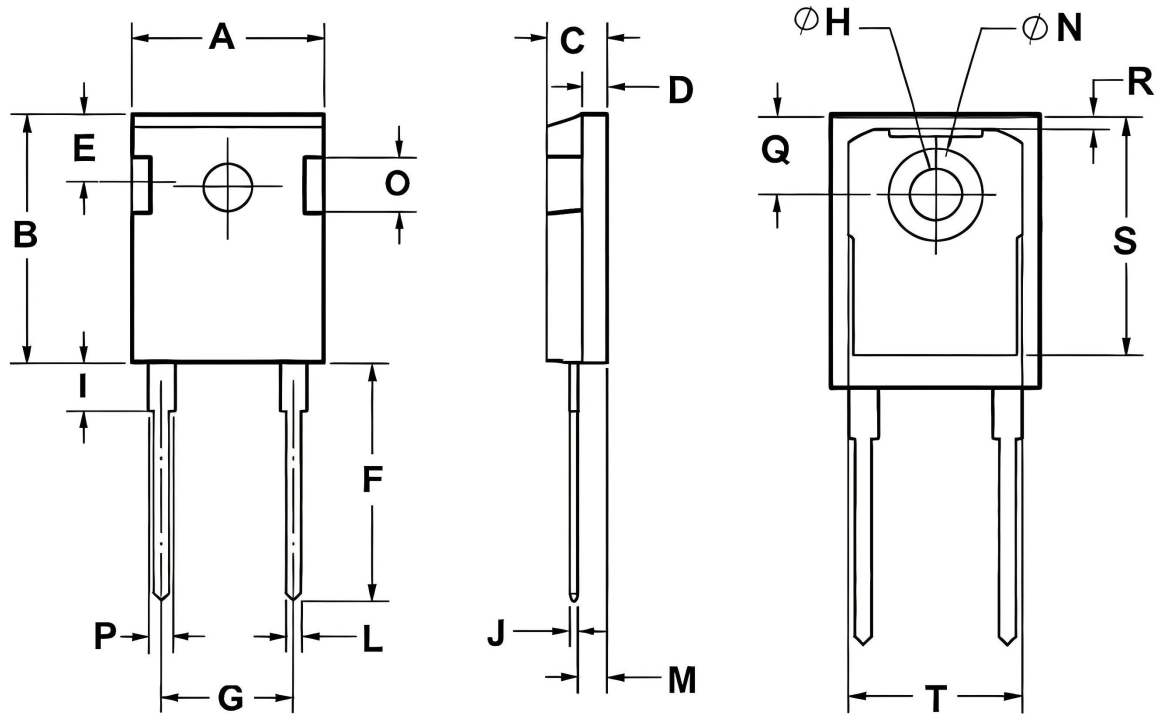


TO-247-2 Package Information (View 1)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	15.650	15.950	0.616	0.628
B	20.800	21.200	0.819	0.835
C	19.710	20.110	0.776	0.792
D	5.650	5.950	0.222	0.234
E	6.000	6.300	0.236	0.248
F	4.850	5.150	0.191	0.203
G	13.820	14.220	0.544	0.560
H	16.350	16.750	0.644	0.659
I	13.110	13.510	0.516	0.532
J	0.550	0.700	0.022	0.028
K	2.260	2.560	0.089	0.101
L	4.850	5.150	0.191	0.203
M	1.900	2.100	0.075	0.083
N	4.020	4.220	0.158	0.166
O	1.950	2.100	0.077	0.083
Φ P	3.450	3.750	0.136	0.148
Φ P1	7.000	7.400	0.276	0.291
Q	2.000	2.200	0.079	0.087
S	1.150	1.300	0.045	0.051
T	10.780	10.980	0.424	0.432

TO-247-2 Package Information (View 2)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	15.500	16.100	0.610	0.634
B	20.700	21.300	0.815	0.839
C	4.700	5.300	0.185	0.209
D	1.800	2.200	0.071	0.087
E	5.200	5.800	0.205	0.228
F	19.700	20.300	0.776	0.799
G	10.600	11.000	0.417	0.433
H	3.300	3.700	0.130	0.146
I	3.900	4.300	0.154	0.169
J	0.500	0.700	0.020	0.028
L	1.000	1.400	0.039	0.055
M	2.200	2.600	0.087	0.102
N	7.000	7.200	0.276	0.283
O	4.900	5.300	0.193	0.209
P	1.800	2.200	0.071	0.087
Q	5.700	5.900	0.224	0.232
R	0.800	1.200	0.031	0.047
S	17.000	17.800	0.669	0.701
T	13.600	14.200	0.535	0.559