

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}	=	1700	V
$I_F (T_C=137^{\circ}C)$	=	50	A
$Q_C (V_R=1200V)$	=	330	nC

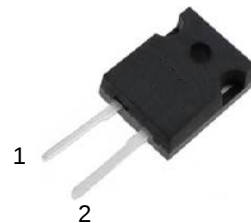
Benefits

- 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
ASYD050170C	TO-247-2	ASYD050170C

Electrical Specifications (T_C=25°C, unless otherwise specified.)

Symbol	Parameter	Test Condition	Min	Typ	Max	Unit
V _R	Reverse Blocking Voltage	I _R =250uA	1700			V
I _R	Reverse Current	V _R =1700V T _J = 25°C T _J = 175°C		0.8 30	100 200	uA
V _F	Forward Voltage	I _F =50A T _J = 25°C T _J =175°C		1.7 3.1	1.9 4.0	V

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

Dynamic Characteristics (T_C=25°C, unless otherwise specified.)

Symbol	Parameter	Test Condition	Min	Typ	Max	Unit
C _j	Typical Junction Capacitance	V _R =0.1 V, f=1 MHz V _R =400 V, f=1 MHz V _R =800 V, f=1 MHz V _R =1200 V, f=1 MHz		3550 730 180 164		pF
Q _C	Total Capacitive Charge	V _R =400V V _R =800V V _R =1200V		180 260 330		nC
E _C	Capacitive Stored Energy,	V _R =400V V _R =800V V _R =1200V		20 58 118		uJ

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

Thermal Resistances (T_C=25°C, unless otherwise specified.)

Symbol	Parameter	Test Condition	Min	Typ	Max	Unit
R _{th(j-c)}	Thermal Resistance, Junction – Case			0.21	0.25	°C/W
R _{th(j-a)}	Thermal Resistance, Junction –Ambient			34.8		°C/W

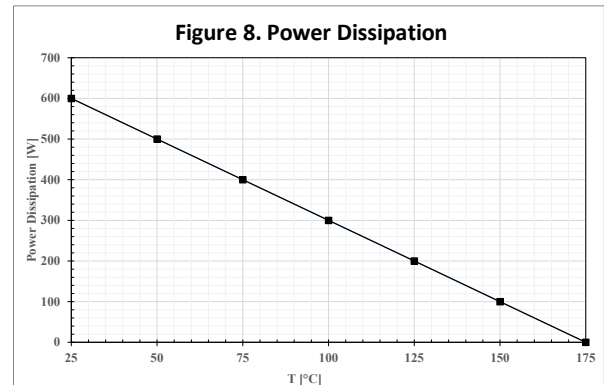
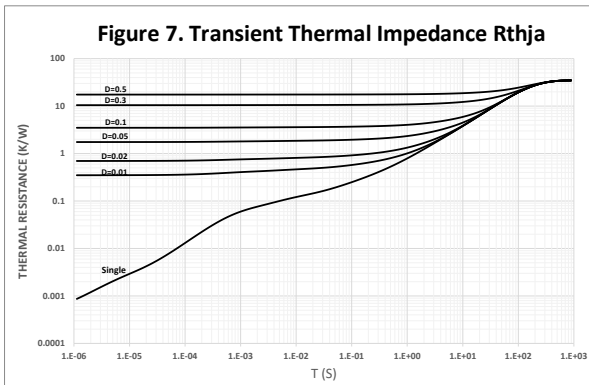
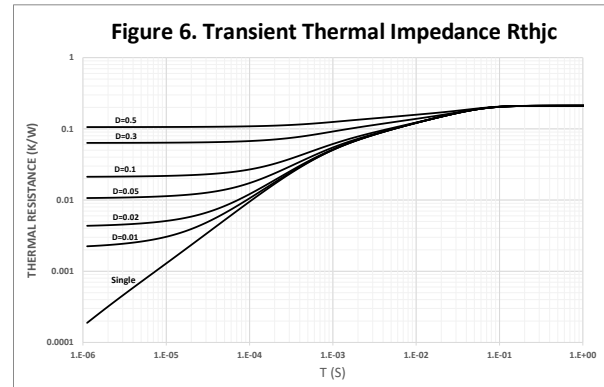
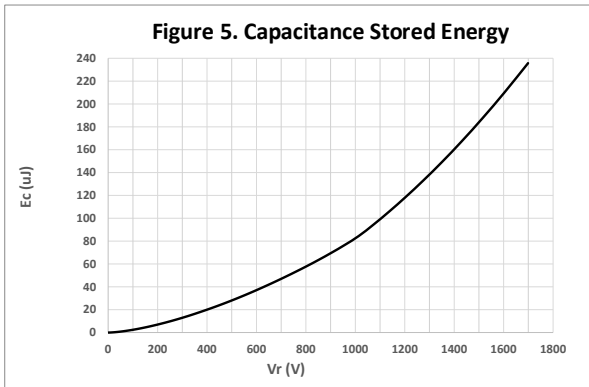
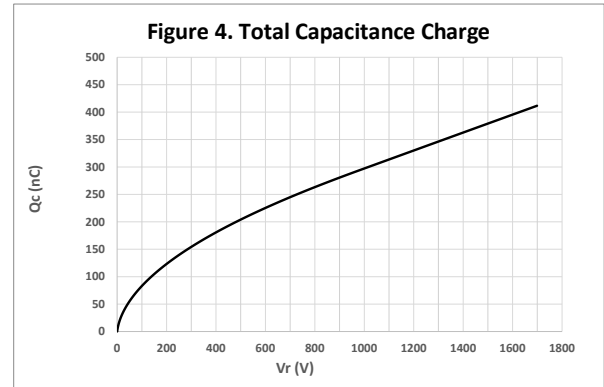
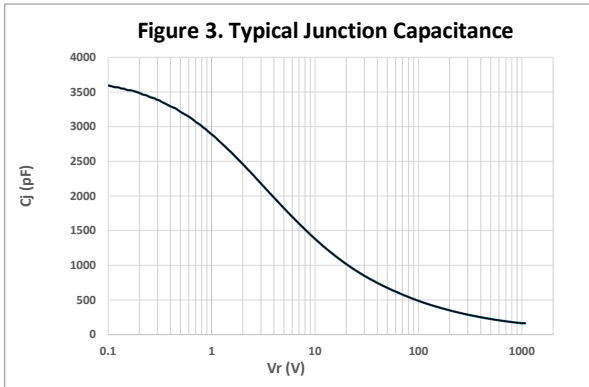
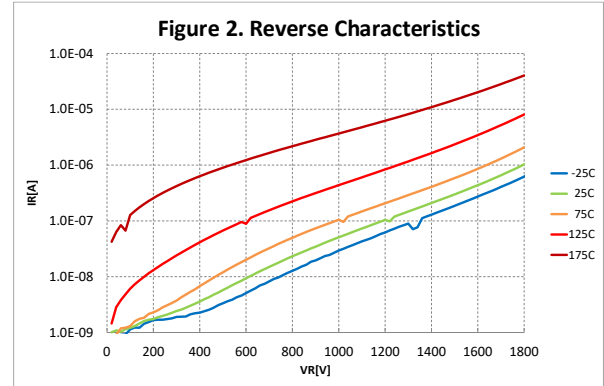
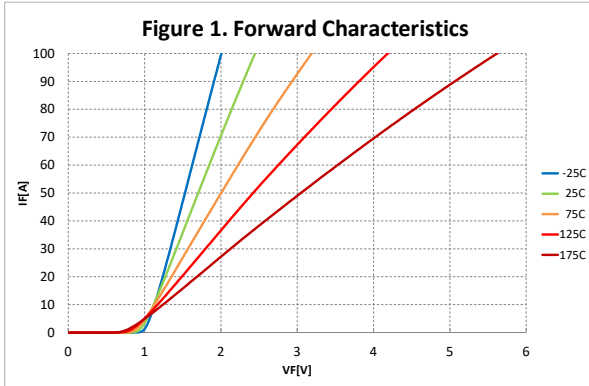
Note: All characteristics are tested with the parts assembled in TO-247-2 package.

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

Symbol	Parameter	Rating
V _{RRM}	Repetitive Peak Reverse Voltage	1700V
I _F	Continuous Forward Current T _C =25 °C, D=1 T _C =100 °C, D=1 T _C =137 °C, D=1	103A 72A 50A
I _{FSM}	Non-Repetitive Forward Surge Current T _C =25 °C, t _p =10ms T _C =125 °C, t _p =10ms	466A 269A
I _{FRM}	Repetitive Forward Surge Current T _C =25 °C, t _p =10ms T _C =125 °C, t _p =10ms	183A 106A
P _{TOT}	Power dissipation for R _{th(j-c,max)} , T _C =25 °C	600W
T _j , T _{stg}	Operating and Storage Temperature	-55°C to 175°C

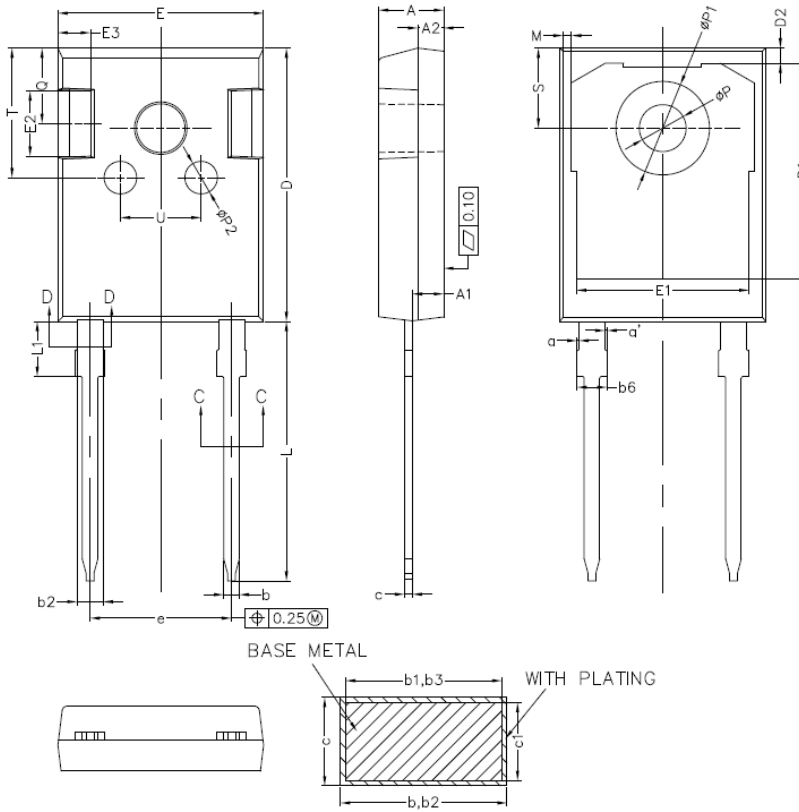
Note: All characteristics are tested with the parts assembled in TO-247-2 package , and exposure to absolute maximum ratings for prolonged time periods may affect device reliability.

Typical Performance



Package Dimensions

Package TO-247-2



COMMON DIMENSIONS
(UNITS OF MEASURE=MILLIMETER)

SYMBOL	MIN	NOM	MAX
A	4.90	5.00	5.10
A1	2.31	2.41	2.51
A2	1.90	2.00	2.10
a	0	—	0.15
a'	0	—	0.15
b	1.16	—	1.29
b1	1.15	1.20	1.25
b2	1.96	—	2.06
b3	1.95	2.00	2.02
b6	—	—	2.25
c	0.59	—	0.66
c1	0.58	0.60	0.62
D	20.90	21.00	21.10
D1	16.25	16.55	16.85
D2	1.05	1.20	1.35
E	15.70	15.80	15.90
E1	13.06	13.26	13.46
E2	4.90	5.00	5.10
E3	2.40	2.50	2.60
e	10.78	10.88	10.98
L	19.80	19.92	20.10
L1	3.93	—	4.46
M	0.35	—	0.95
P	3.50	3.60	3.70
P1	7.00	—	7.40
P2	2.40	2.50	2.60
Q	5.60	—	6.00
S	6.05	6.15	6.25
T	9.80	—	10.20
U	6.00	—	6.40

NOTES:
1. ALL DIMENSIONS REFER TO JEDEC STANDARD
TO-247 AD DO NOT INCLUDE MOLD FLASH
OR PROTRUSIONS.
2. EJECTION MARK DEPTH 0.10±0.15