



Features

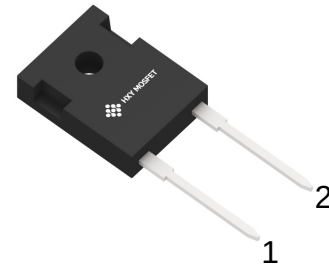
- 1200-Volt Schottky Rectifier
- Zero Reverse Recovery Current
- Zero Forward Recovery Voltage
- High-Frequency Operation
- Temperature-Independent Switching Behavior
- Extremely Fast Switching
- Positive Temperature Coefficient on V_F

Benefits

- Replace Bipolar with Unipolar Rectifiers
- Essentially No Switching Losses
- Higher Efficiency
- Reduction of Heat Sink Requirements
- Parallel Devices Without Thermal Runaway

Applications

- Switch Mode Power Supplies
- Power Factor Correction
- Motor Drives



TO-247-2L



Part Number	Package	Qty(PCS)
SIC10120PTA-BP	TO-247-2L	30

Maximum Ratings ($T_C = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Value	Unit	Test Conditions
V_{RRM}	Repetitive Peak Reverse Voltage	1200	V	
V_{RSM}	Surge Peak Reverse Voltage	1200	V	
I_F	Continuous Forward Current	27.3 13.1 10	A	$T_C=25^\circ\text{C}$ $T_C=135^\circ\text{C}$ $T_C=149.5^\circ\text{C}$
I_{FRM}	Repetitive Peak Forward Surge Current	50	A	$T_C=25^\circ\text{C}$, $t_p = 10$ ms, Half Sine Wave
I_{FSM}	Non-Repetitive Peak Forward Surge Current	100	A	$T_C=25^\circ\text{C}$, $t_p = 10$ ms, Half Sine Wave
P_{tot}	Power Dissipation	136 59	W	$T_C=25^\circ\text{C}$ $T_C=110^\circ\text{C}$
T_J, T_{stg}	Operating Junction and Storage Temperature	-55 to +175	$^\circ\text{C}$	
	TO-220 Mounting Torque	1	Nm	M3 Screw
$\int i^2 dt$	$i^2 dt$ value	50	A^2s	$T_C=25^\circ\text{C}$, $t_p = 10$ ms, Half Sine Wave



Electrical Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
V_{DC}	DC Blocking Voltage	1200			V	
V_F	Forward Voltage		1.47 2.23	1.7 2.5	V	$I_F = 10\text{ A}$ $T_J = 25^\circ\text{C}$ $I_F = 10\text{ A}$ $T_J = 175^\circ\text{C}$
I_R	Reverse Current		3.5 17	50 100	μA	$V_R = 1200\text{ V}$ $T_J = 25^\circ\text{C}$ $V_R = 1200\text{ V}$ $T_J = 175^\circ\text{C}$
Q_C	Total Capacitive Charge		39		nC	$V_R = 800\text{ V}$ $T_J = 25^\circ\text{C}$
C	Total Capacitance		579 37 30		pF	$V_R = 0\text{ V}$, $T_J = 25^\circ\text{C}$, $f = 1\text{ MHz}$ $V_R = 400\text{ V}$, $T_J = 25^\circ\text{C}$, $f = 1\text{ MHz}$ $V_R = 800\text{ V}$, $T_J = 25^\circ\text{C}$, $f = 1\text{ MHz}$
E_C	Capacitance Stored Energy		20		μJ	$V_R = 800\text{ V}$

Thermal Characteristics

Symbol	Parameter	Typ.	Unit
$R_{\theta JC}$	Thermal Resistance from Junction to Case	1.10	$^\circ\text{C/W}$

Typical Performance

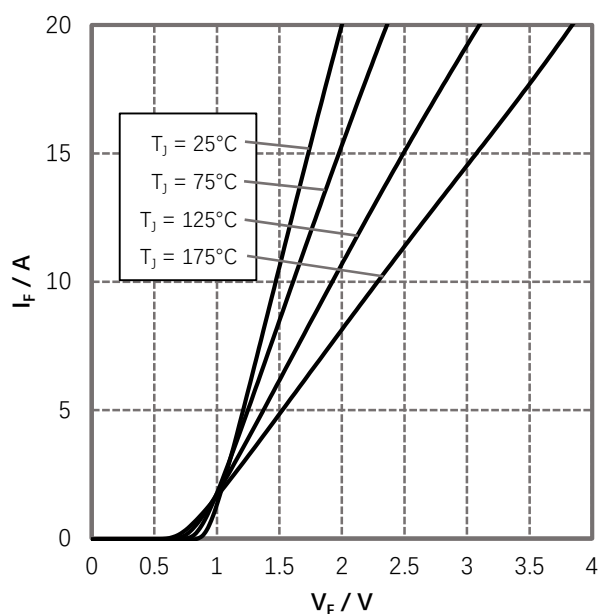


Figure 1. Forward Characteristics

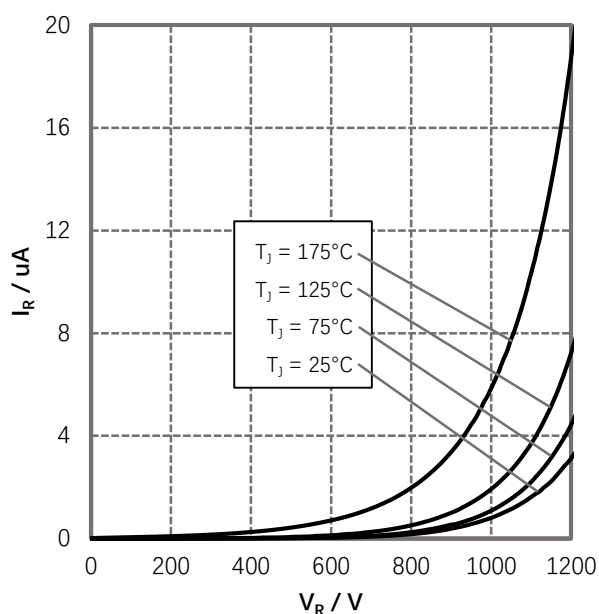


Figure 2. Reverse Characteristics

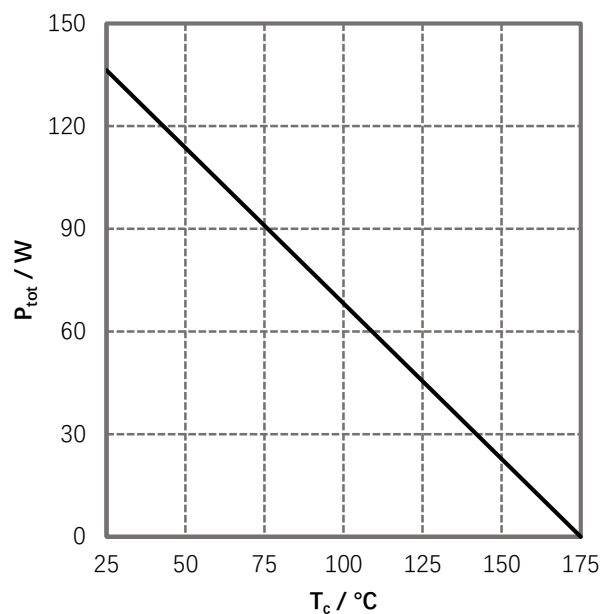


Figure 3. Power Derating

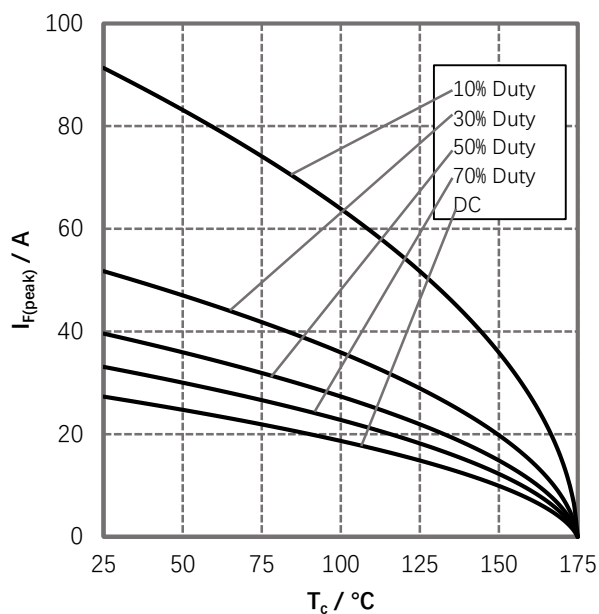


Figure 4. Current Derating

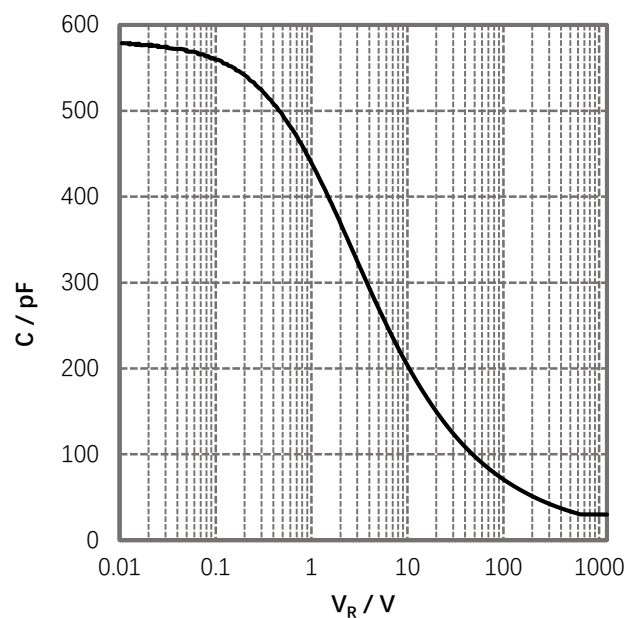


Figure 5. Capacitance vs. Reverse Voltage

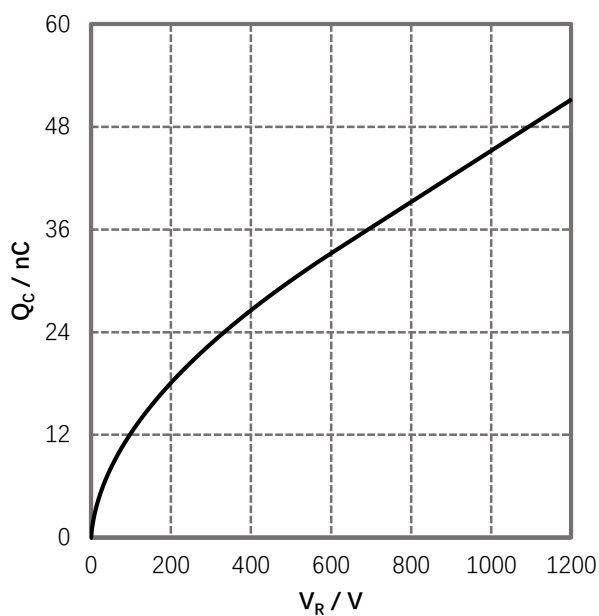


Figure 6. Total Capacitance Charge vs. Reverse Voltage

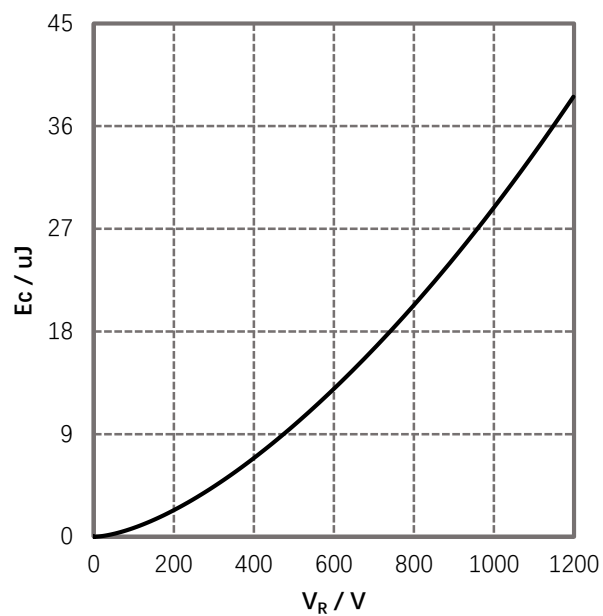


Figure 7. Capacitance Stored Energy

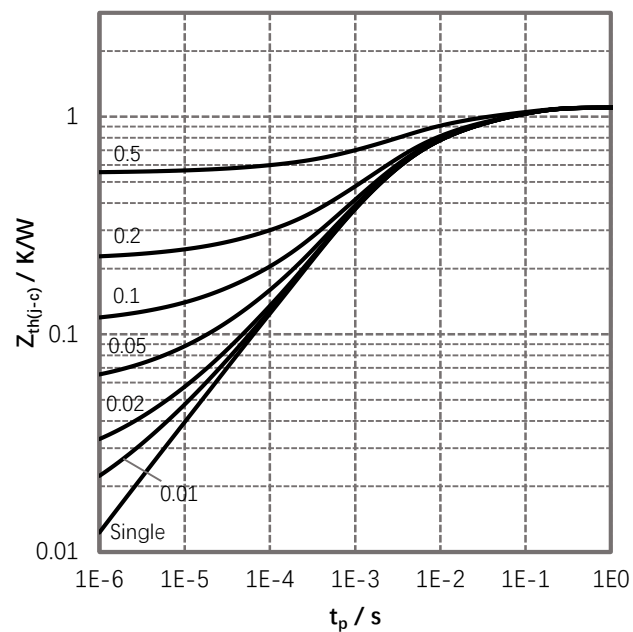
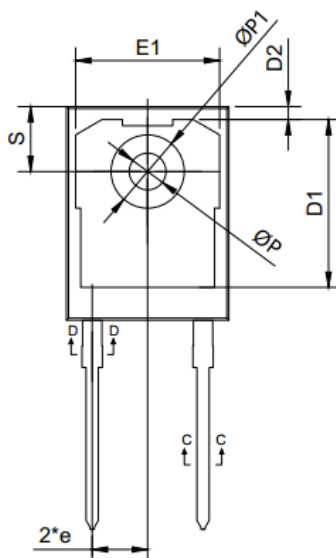
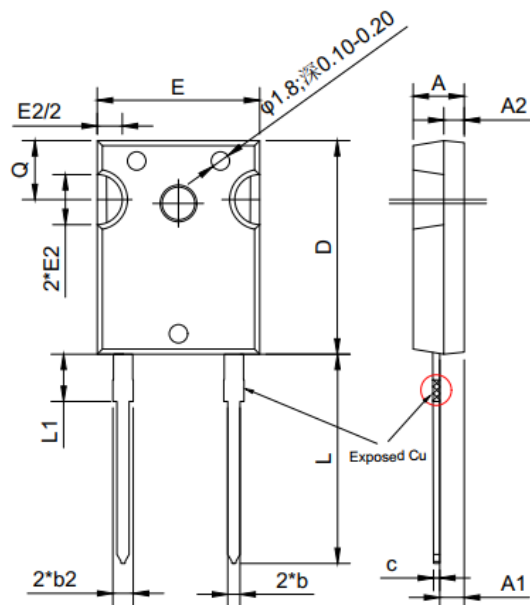


Figure 8. Transient Thermal Impedance



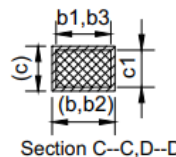
Package Information TO-247-2L



SYMBOL	DIMENSIONS		NOTES
	MIN	MAX	
A	4.83	5.21	
A1	2.29	2.55	
A2	1.50	2.49	
b	1.07	1.33	
b1	1.07	1.28	
b2	1.91	2.41	6
b3	1.91	2.34	
c	0.55	0.69	6
c1	0.55	0.65	
D	20.80	21.10	4
D1	16.25	17.65	5
D2	0.51	1.35	
E	15.75	16.13	4
E1	13.10	14.16	5
E2	3.68	5.49	3
e	5.44BSC		
L	19.81	20.32	6
L1	3.90	4.40	7
phi P	3.51	3.65	
phi P1	7.19REF		
Q	5.39	6.20	
S	6.04	6.30	



- Note:
- 1 Package Reference: JEDEC TO-247, Variation AD.
 - 2 All Dimensions Are In mm.
 - 3 Solder Required, Notch May Be Rounded.
 - 4 Dimension D & E Do Not Include Mold Flash. Mold Flash Shall Not Exceed 0.127mm Per Side. These Dimensions Are Measured At The Outermost Extreme Of The Plastic Body.
 - 5 Thermal Pad Contour Optional Within Dimension D1 & E1.
 - 6 Lead Finish Uncontrolled In L1.
 - 7 phi P To Have A Maximum Draft Angle Of 1.5° To The Top Of The Part With A Maximum Hole Diameter Of 3.91mm.
 - 8 Dimension b2 And b4 Does Not Include Dambar Protrusion. Allowable Dambar Protrusion Shall Be 0.10mm Total In Excess Of b2 And b4 Dimension At Maximum Material Condition.



Section C-C, D-D



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