



### Features

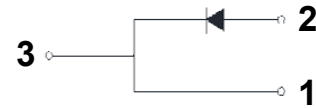
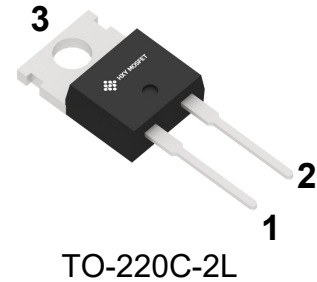
- 650-Volt Schottky Rectifier
- Zero Reverse Recovery Current
- Zero Forward Recovery Voltage
- High-Frequency Operation
- Temperature-Independent Switching Behavior
- Extremely Fast Switching
- Positive Temperature Coefficient on  $V_F$

### 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



Part Number	Package	Qty(PCS)
IDH04SG60CXKSA1	TO-220C-2L	50

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

Symbol	Parameter	Value	Unit	Test Conditions
$V_{RRM}$	Repetitive Peak Reverse Voltage	650	V	
$V_{RSM}$	Surge Peak Reverse Voltage	650	V	
$I_F$	Continuous Forward Current	11.4 5.3 4	A	$T_C=25^\circ\text{C}$ $T_C=135^\circ\text{C}$ $T_C=150^\circ\text{C}$
$I_{FRM}$	Repetitive Peak Forward Surge Current	16	A	$T_C=25^\circ\text{C}$ , $t_p = 10$ ms, Half Sine Wave
$I_{FSM}$	Non-Repetitive Peak Forward Surge Current	32	A	$T_C=25^\circ\text{C}$ , $t_p = 10$ ms, Half Sine Wave
$P_{tot}$	Power Dissipation	47 20	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	5.12	$\text{A}^2\text{s}$	$T_C=25^\circ\text{C}$ , $t_p = 10$ ms, Half Sine Wave



### Electrical Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
$V_{DC}$	DC Blocking Voltage	650			V	
$V_F$	Forward Voltage		1.53 1.94	1.7 2.5	V	$I_F = 4\text{ A } T_J = 25^\circ\text{C}$ $I_F = 4\text{ A } T_J = 175^\circ\text{C}$
$I_R$	Reverse Current		0.09 0.79	50 100	$\mu\text{A}$	$V_R = 650\text{ V } T_J = 25^\circ\text{C}$ $V_R = 650\text{ V } T_J = 175^\circ\text{C}$
$Q_C$	Total Capacitive Charge		10		nC	$V_R = 400\text{ V } T_J = 25^\circ\text{C}$
C	Total Capacitance		184 19.2 18.8		pF	$V_R = 0\text{ V}, T_J = 25^\circ\text{C}, f = 1\text{ MHz}$ $V_R = 200\text{ V}, T_J = 25^\circ\text{C}, f = 1\text{ MHz}$ $V_R = 400\text{ V}, T_J = 25^\circ\text{C}, f = 1\text{ MHz}$
$E_C$	Capacitance Stored Energy		2		$\mu\text{J}$	$V_R = 400\text{ V}$

### Thermal Characteristics

Symbol	Parameter	Typ.	Unit
$R_{\theta JC}$	Thermal Resistance from Junction to Case	3.2	$^\circ\text{C/W}$

### Typical Performance

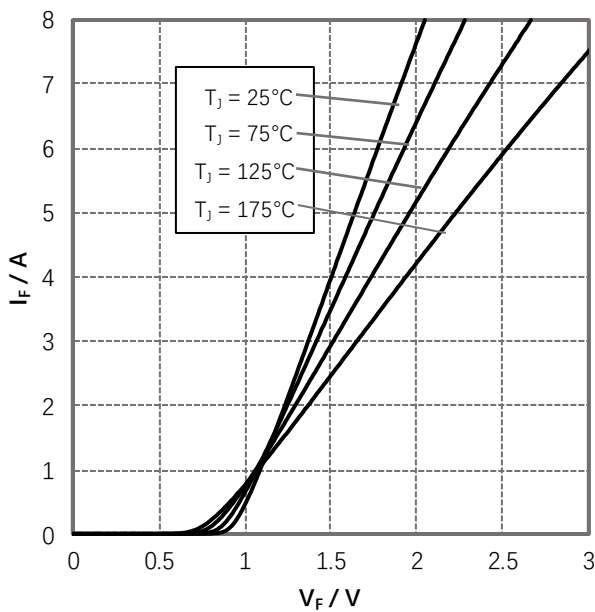


Figure 1. Forward Characteristics

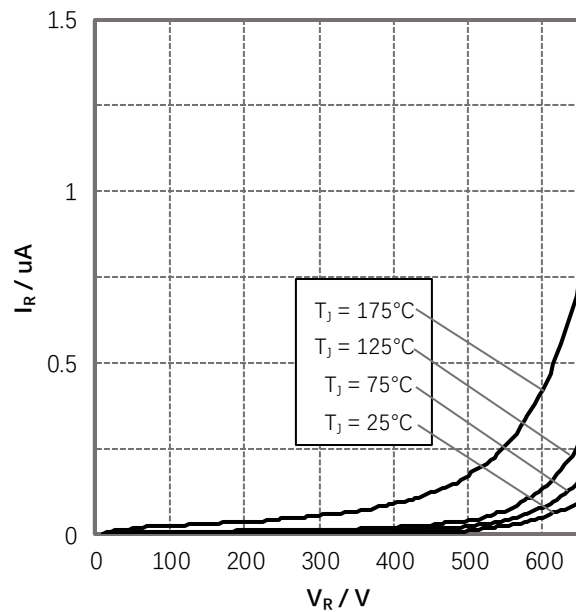


Figure 2. Reverse Characteristics

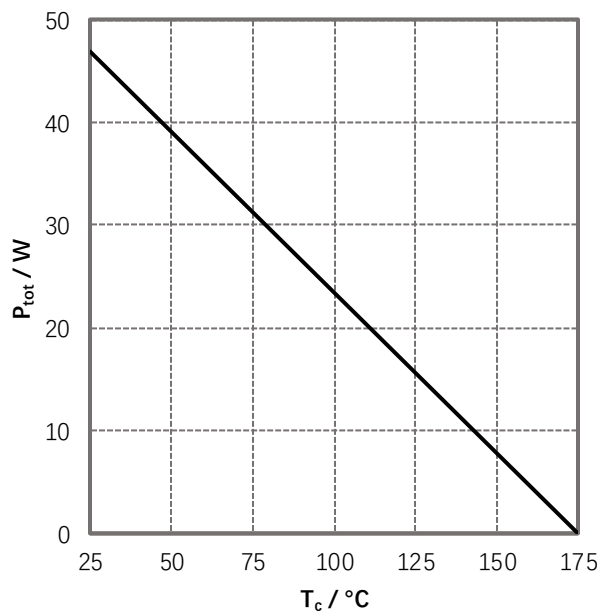


Figure 3. Power Derating

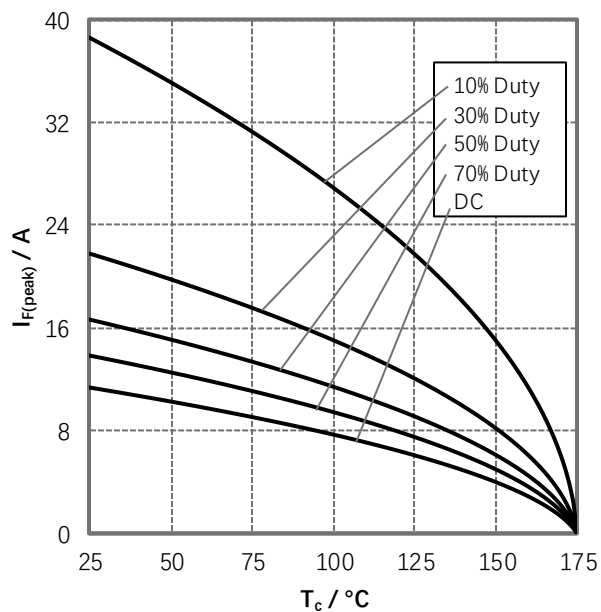


Figure 4. Current Derating

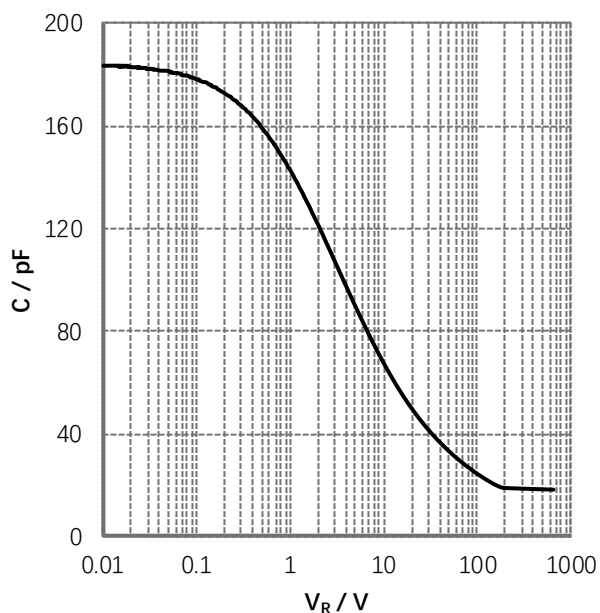


Figure 5. Capacitance vs. Reverse Voltage

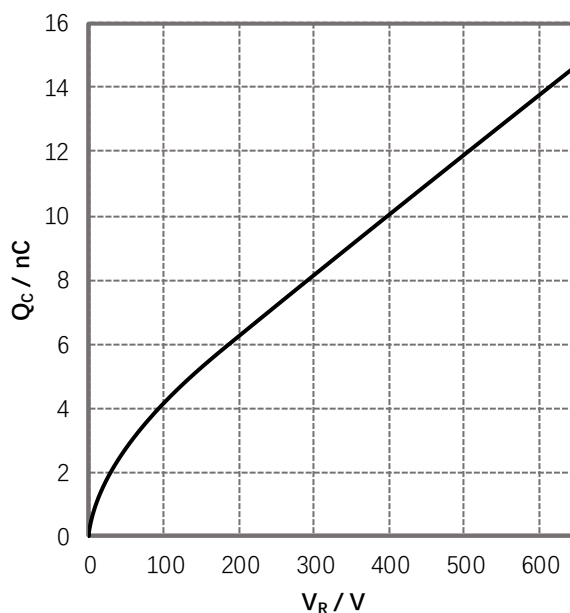


Figure 6. Total Capacitance Charge vs. Reverse Voltage

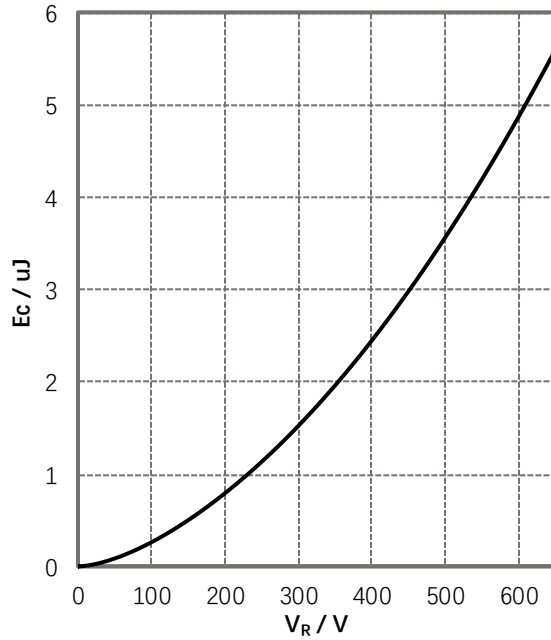


Figure 7. Capacitance Stored Energy

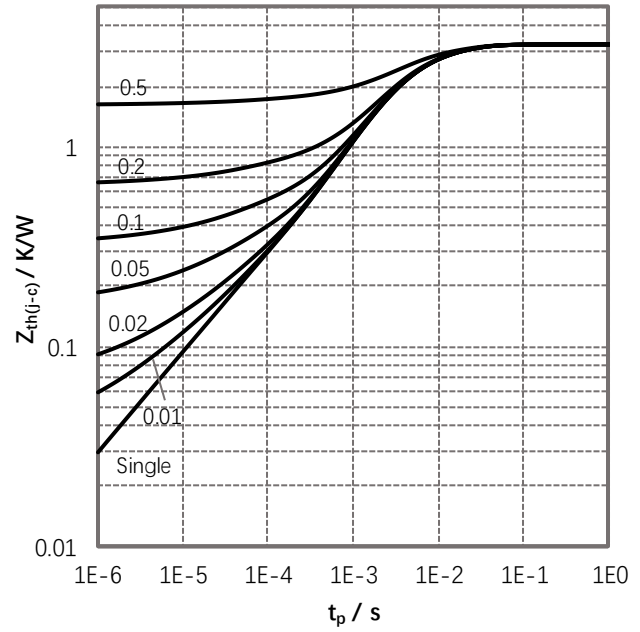
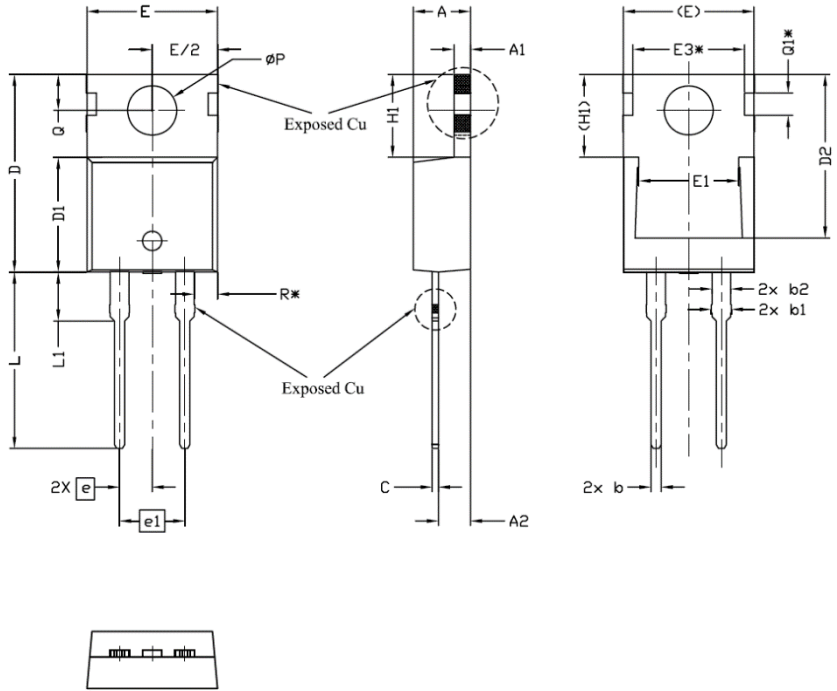


Figure 8. Transient Thermal Impedance

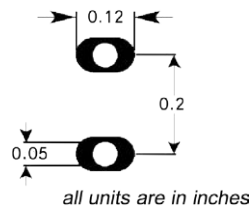


**Package Information**  
**TO-220C-2L**



SYMBOL	DIMENSIONS			NOTES
	MIN.	NOM.	MAX.	
A	4,24	4,44	4,64	
A1	1,15	1,27	1,40	
A2	2,30	2,48	2,70	
b	0,70	0,80	0,90	
b1	1,20	1,55	1,75	
b2	1,20	1,45	1,70	
c	0,40	0,50	0,60	
D	14,70	15,37	16,00	4
D1	8,82	8,92	9,02	
D2	12,43	12,73	12,83	5
E	9,96	10,16	10,36	4,5
E1	6,86	7,77	8,89	5
E3*	8,70REF.			
e	2,54BSC			
e1	5,08BSC			
H1	6,30	6,45	6,60	5,6
L	13,47	13,72	13,97	
L1	3,60	3,80	4,00	
øP	3,75	3,84	3,93	
Q	2,60	2,80	3,00	
Q1*	1,73REF.			
R*	1,82REF.			

**Recommended Solder Pad Layout**



TO-220C-2L



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