



15TQ060 15TQ060S

SCHOTTKY RECTIFIER

15 Amp

$I_{F(AV)} = 15 \text{ Amp}$
 $V_R = 60V$

Major Ratings and Characteristics


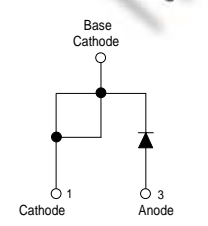

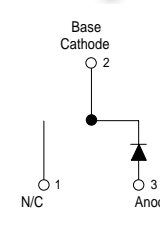
Characteristics	Values	Units
$I_{F(AV)}$ Rectangular waveform	15	A
V_{RRM}	60	V
I_{FSM} @tp = 5 μ s sine	1000	A
V_F @15 Apk, $T_J = 125^\circ\text{C}$	0.56	V
T_J range	-55 to 150	$^\circ\text{C}$

Description/Features

The 15TQ060 Schottky rectifier has been optimized for very low forward voltage drop, with moderate leakage. The proprietary barrier technology allows for reliable operation up to 150° C junction temperature. Typical applications are in switching power supplies, converters, free-wheeling diodes, and reverse battery protection.

- 150° C T_J operation
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- Very low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability

Case Styles

<p>15TQ060</p>   <p>TO-220AC</p>	<p>15TQ060S</p>   <p>D²PAK</p>
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Voltage Ratings

Part number	15TQ060
V_R Max. DC Reverse Voltage (V)	60
V_{RWM} Max. Working Peak Reverse Voltage (V)	

Absolute Maximum Ratings

Parameters	15TQ	Units	Conditions
$I_{F(AV)}$ Max. Average Forward Current * See Fig. 5	15	A	50% duty cycle @ $T_C = 104^\circ\text{C}$, rectangular wave form
I_{FSM} Max. Peak One Cycle Non-Repetitive Surge Current * See Fig. 7	1000	A	Following any rated load condition and with rated V_{RRM} applied
	260		
E_{AS} Non-Repetitive Avalanche Energy	6	mJ	$T_J = 25^\circ\text{C}$, $I_{AS} = 1.50\text{Amps}$, $L = 11.5\text{mH}$
I_{AR} Repetitive Avalanche Current	1.50	A	Current decaying linearly to zero in 1 μsec Frequency limited by T_J max. $V_A = 1.5 \times V_R$ typical

Electrical Specifications

Parameters	15TQ	Units	Conditions
V_{FM} Max. Forward Voltage Drop (1) * See Fig. 1	0.62	V	@ 15A $T_J = 25^\circ\text{C}$
	0.82	V	@ 30A
	0.56	V	@ 15A $T_J = 125^\circ\text{C}$
	0.71	V	@ 30A
I_{RM} Max. Reverse Leakage Current (1) * See Fig. 2	0.80	mA	$T_J = 25^\circ\text{C}$
	45	mA	$T_J = 125^\circ\text{C}$ $V_R = \text{rated } V_R$
C_T Max. Junction Capacitance	720	pF	$V_R = 5V_{DC}$, (test signal range 100Khz to 1Mhz) 25°C
L_S Typical Series Inductance	8.0	nH	Measured lead to lead 5mm from package body
dv/dt Max. Voltage Rate of Change (Rated V_R)	10000	V/ μs	

(1) Pulse Width < 300 μs , Duty Cycle < 2%

Thermal-Mechanical Specifications

Parameters	15TQ	Units	Conditions
T_J Max. Junction Temperature Range	-55 to 150	$^\circ\text{C}$	
T_{stg} Max. Storage Temperature Range	-55 to 150	$^\circ\text{C}$	
R_{thJC} Max. Thermal Resistance Junction to Case	3.25	$^\circ\text{C/W}$	DC operation * See Fig. 4
R_{thCS} Typical Thermal Resistance, Case to Heatsink	0.50	$^\circ\text{C/W}$	Mounting surface, smooth and greased
wt Approximate Weight	2 (0.07)	g (oz.)	
T Mounting Torque	Min.	6 (5)	Kg-cm (lbf-in)
	Max.	12 (10)	
Marking Device	15TQ060	Case Style TO-220	
	15TQ060S	Case Style D ² Pak	

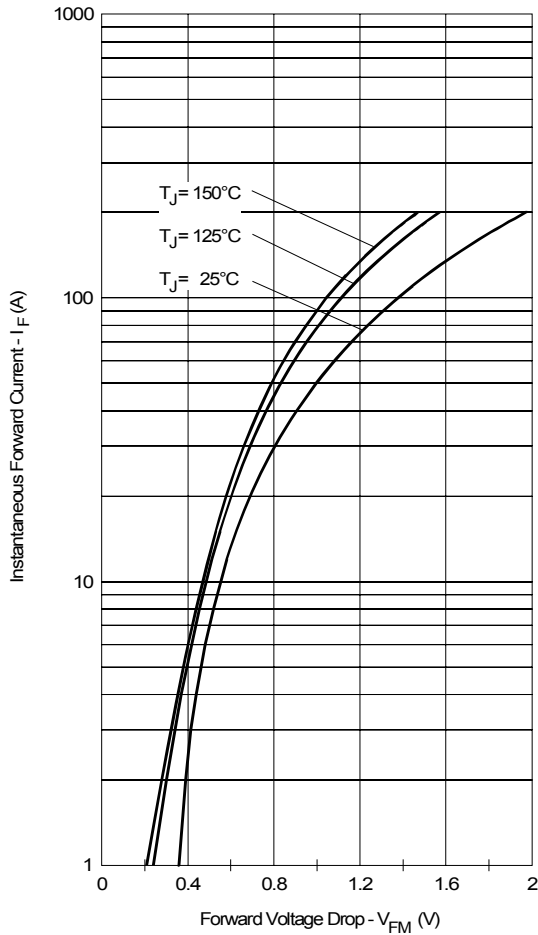


Fig. 1 - Maximum Forward Voltage Drop Characteristics

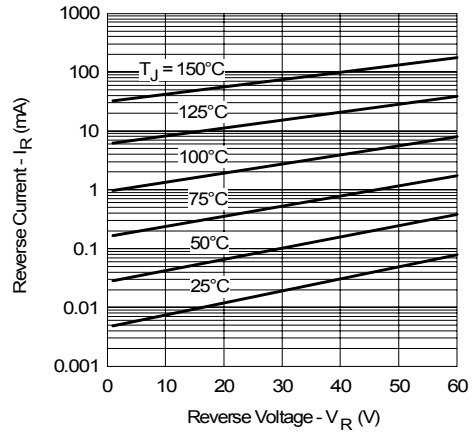


Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage

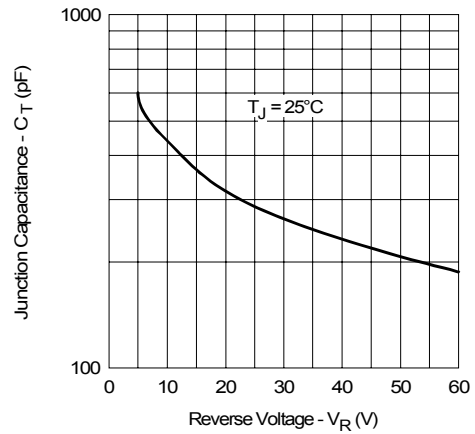


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

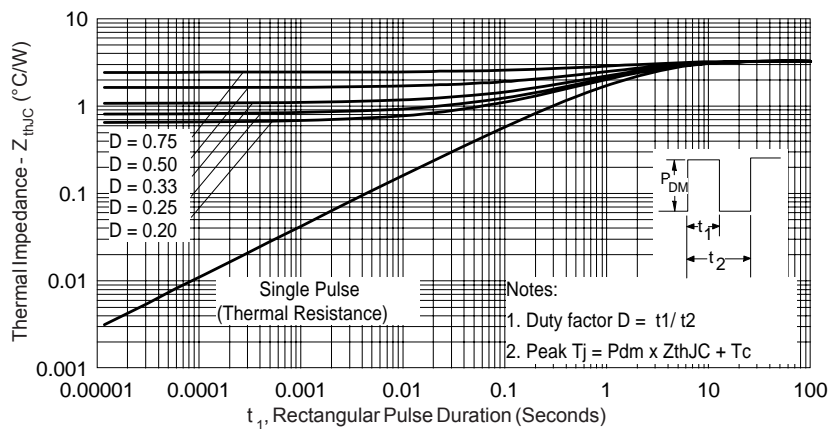


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics

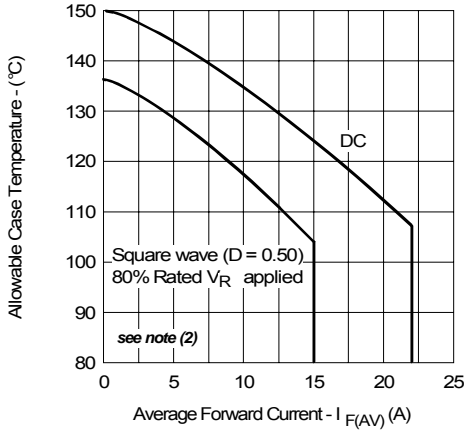


Fig. 5 - Maximum Allowable Case Temperature Vs. Average Forward Current

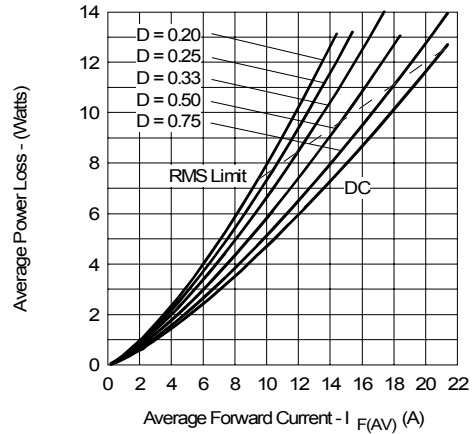


Fig. 6 - Forward Power Loss Characteristics

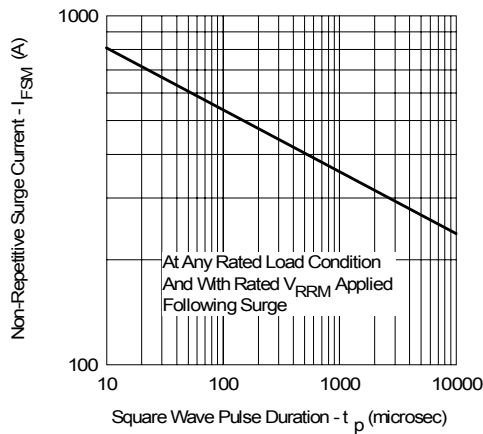


Fig. 7 - Maximum Non-Repetitive Surge Current

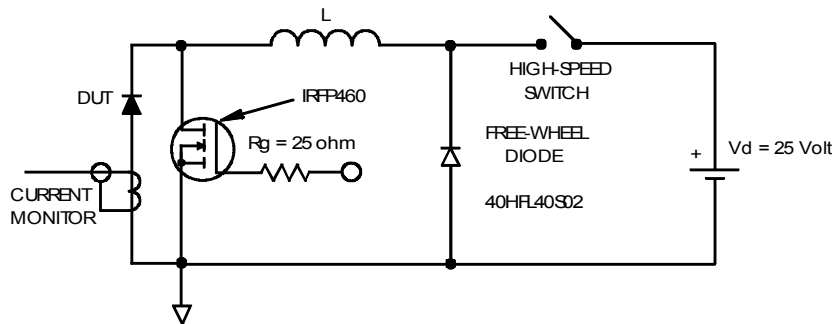


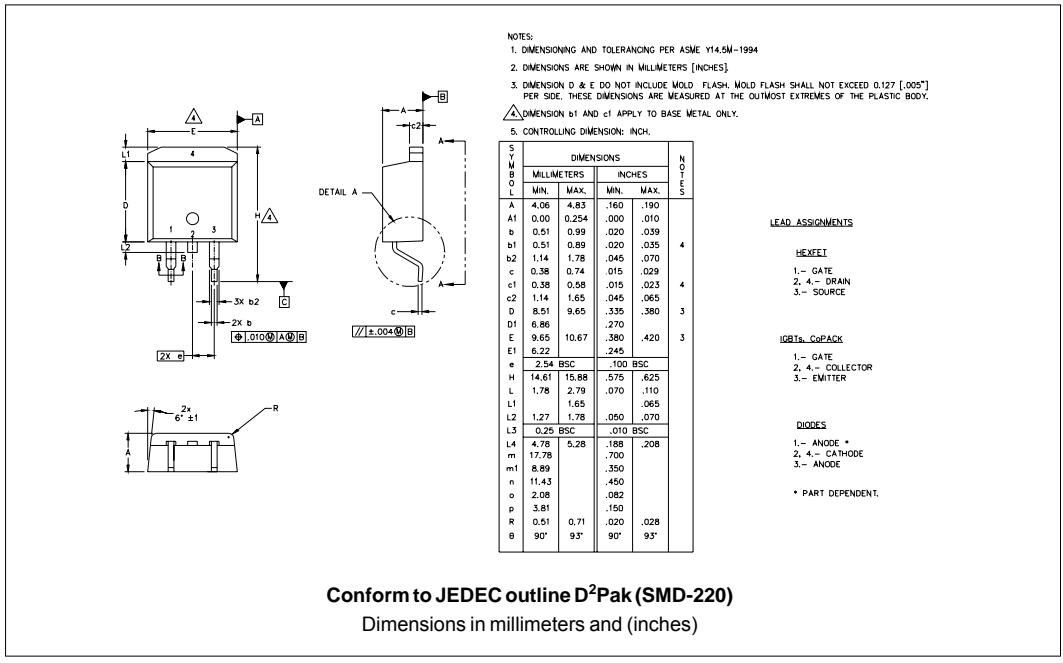
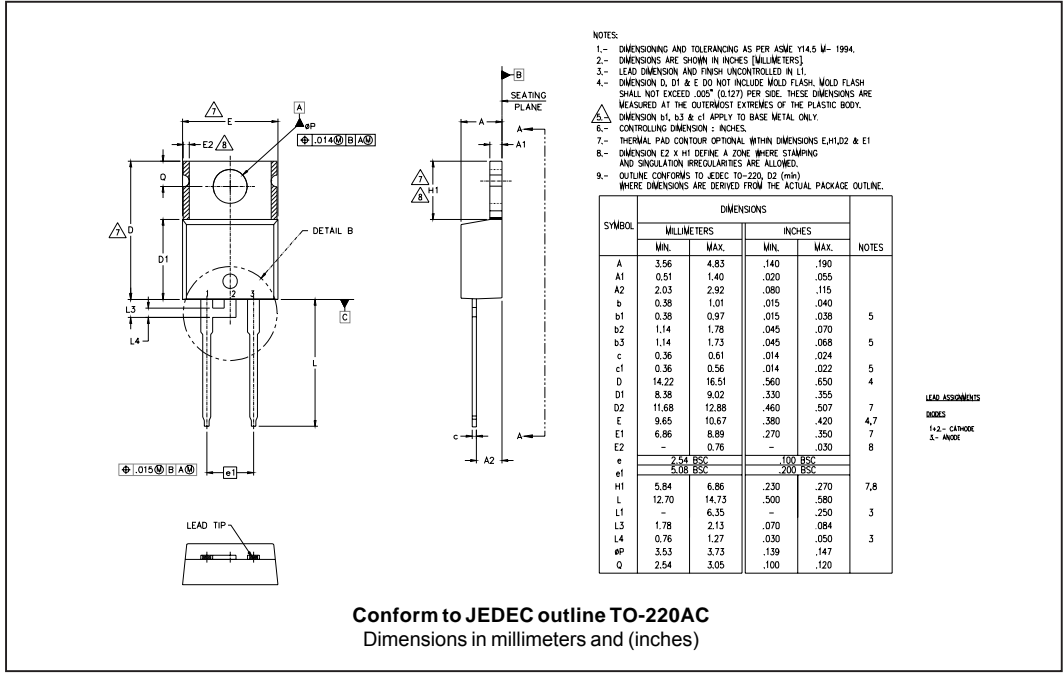
Fig. 8 - Unclamped Inductive Test Circuit

(2) Formula used: $T_c = T_j - (Pd + Pd_{REV}) \times R_{thJC}$;

Pd = Forward Power Loss = $I_{F(AV)} \times V_{FM} @ (I_{F(AV)} / D)$ (see Fig. 6);

Pd_{REV} = Inverse Power Loss = $V_{R1} \times I_R (1 - D)$; $I_R @ V_{R1} = 80\%$ rated V_R

Outline Table



Ordering Information Table

Device Code	
15	T
Q	060
S	-
①	②
③	④
⑤	⑥
1	- Current Rating (15 = 15A)
2	- Package T=TO-220
3	- Schottky "Q" Series
4	- Voltage Rating (060 = 60V)
5	- • none = TO-220 • S = D ² Pak
6	- • none = Standard Production • PbF = Lead-Free
Tube Standard Pack Quantity : 50 pieces	

Data and specifications subject to change without notice.
 This product has been designed and qualified for Industrial Level.
 Qualification Standards can be found on IR's Web site.