

International
IOR Rectifier

63CTQ100PbF

SCHOTTKY RECTIFIER

60 Amp

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

$$V_R = 100\text{V}$$

Major Ratings and Characteristics

Characteristics	Values	Units
$I_{F(AV)}$ Rectangular waveform (Per Device)	60	A
I_{FRM} @ $T_C = 139^\circ\text{C}$ (Per Leg)	60	A
V_{RRM}	100	V
I_{FSM} @ $t_p = 5\text{ }\mu\text{s}$ sine	1500	A
V_F @ 30 Apk, $T_J = 125^\circ\text{C}$	0.69	V
T_J range	-65 to 175	$^\circ\text{C}$

Description/ Features

This center tap Schottky rectifier has been optimized for low reverse leakage at high temperature. The proprietary barrier technology allows for reliable operation up to 175°C junction temperature. Typical applications are in switching power supplies, converters, free-wheeling diodes, and reverse battery protection.

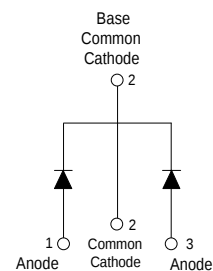
- 175°C T_J operation
- Center tap TO-220 package
- Low forward voltage drop
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability
- Lead-Free ("PbF" suffix)

Case Styles

63CTQ100PbF



TO-220



Voltage Ratings

Parameters	63CTQ100PbF
V_R Max. DC Reverse Voltage (V)	100
V_{RWM} Max. Working Peak Reverse Voltage (V)	

Absolute Maximum Ratings

Parameters	Values	Units	Conditions
$I_{F(AV)}$ Max. Average Forward (Per Leg) Current (Per Device)	30 60	A	50% duty cycle @ $T_C = 139^\circ\text{C}$, rectangular wave form
I_{FRM} Peak Repetitive Forward Current (Per Leg)	60	A	Rated V_R , square wave, 20kHz $T_C = 140^\circ\text{C}$
I_{FSM} Max. Peak One Cycle Non -Repetitive Surge Current (Per Leg)	1500 300	A	5 μs Sine or 3 μs Rect. pulse 10ms Sine or 6ms Rect. pulse Following any rated load condition and with rated V_{RRM} applied
E_{AS} Non -Repetitive Avalanche Energy (Per Leg)	11.25	mJ	$T_J = 25^\circ\text{C}$, $I_{AS} = 0.75\text{Amps}$, $L = 40\text{mH}$
I_{AR} Repetitive Avalanche Current (Per Leg)	0.75	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	Typ.	Max.	Units	Conditions
V_{FM} Max. Forward Voltage Drop (1)	0.78	0.82	V	@ 30A $T_J = 25^\circ\text{C}$
	0.94	1.0	V	@ 60A
	0.64	0.69	V	@ 30A $T_J = 125^\circ\text{C}$
	0.78	0.83	V	@ 60A
I_{RM} Max. Instantaneous Reverse Current	0.02	0.3	mA	$T_J = 25^\circ\text{C}$ Rated DC voltage
	11	20	mA	$T_J = 125^\circ\text{C}$
C_T Max. Junction Capacitance	1100		pF	$V_R = 5V_{DC}$ (test signal range 100Khz to 1Mhz) 25°C
L_S Typical Series Inductance	8.0		nH	Measured from top of terminal to mounting plane
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	Values	Units	Conditions
T_J Max. Junction Temperature Range	-65 to 175	$^\circ\text{C}$	
T_{stg} Max. Storage Temperature Range	-65 to 175	$^\circ\text{C}$	
R_{thJC} Max. Thermal Resistance Junction to Case (Per Leg)	1.2	$^\circ\text{C/W}$	DC operation
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)	Non-lubricated threads
	Max. 12 (10)		
Marking Device	63CTQ100		

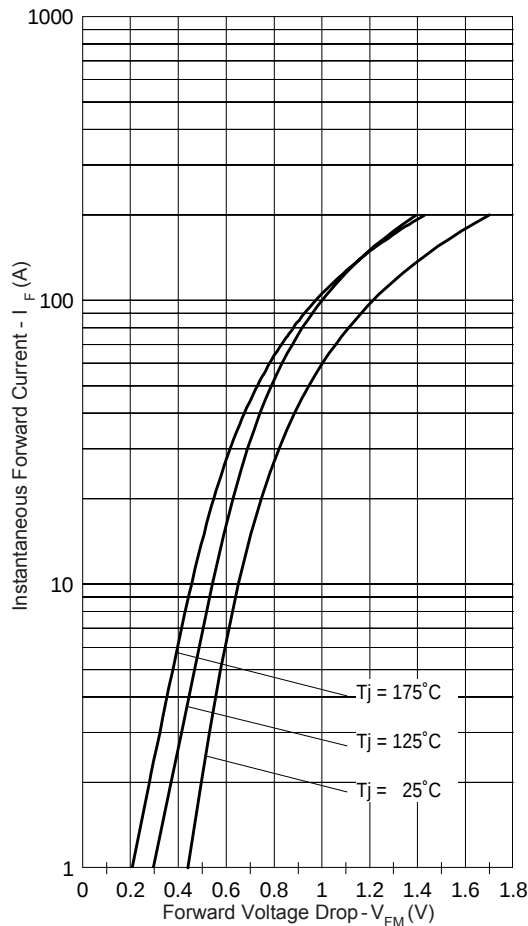


Fig. 1 - Maximum Forward Voltage Drop Characteristics

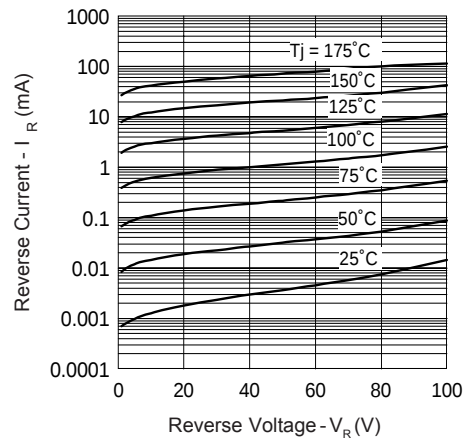


Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage

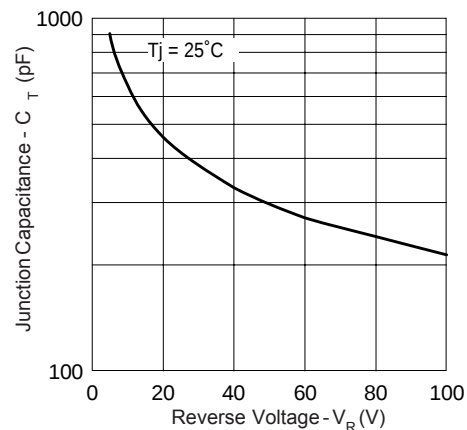


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

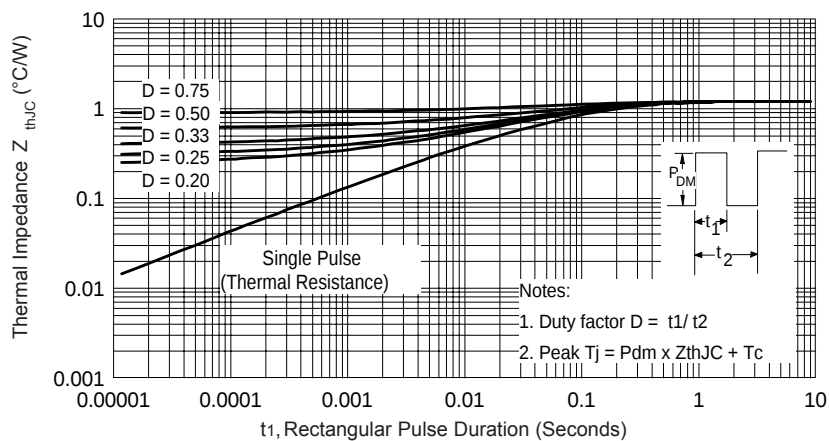


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics

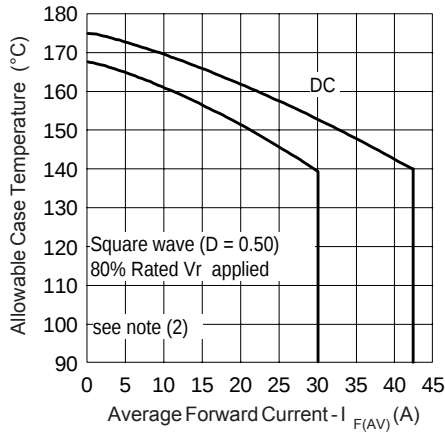


Fig. 5 - Max. Allowable Case Temperature Vs. Average Forward Current

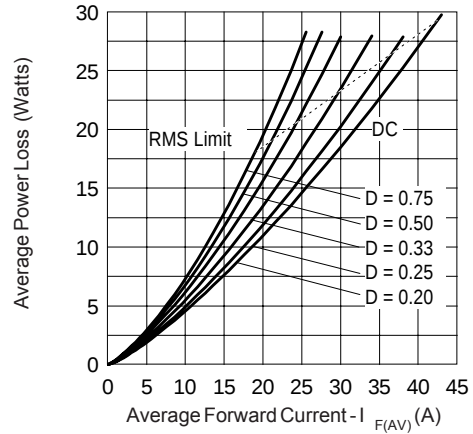


Fig. 6 - Forward Power Loss Characteristics

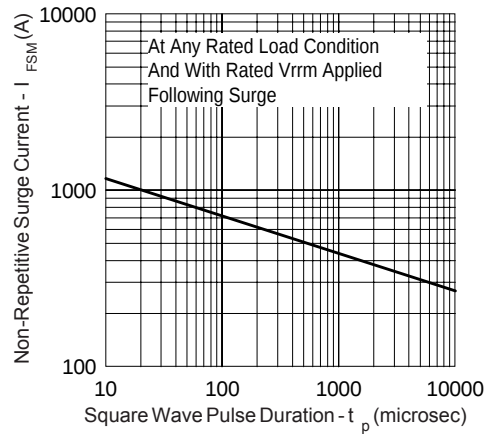


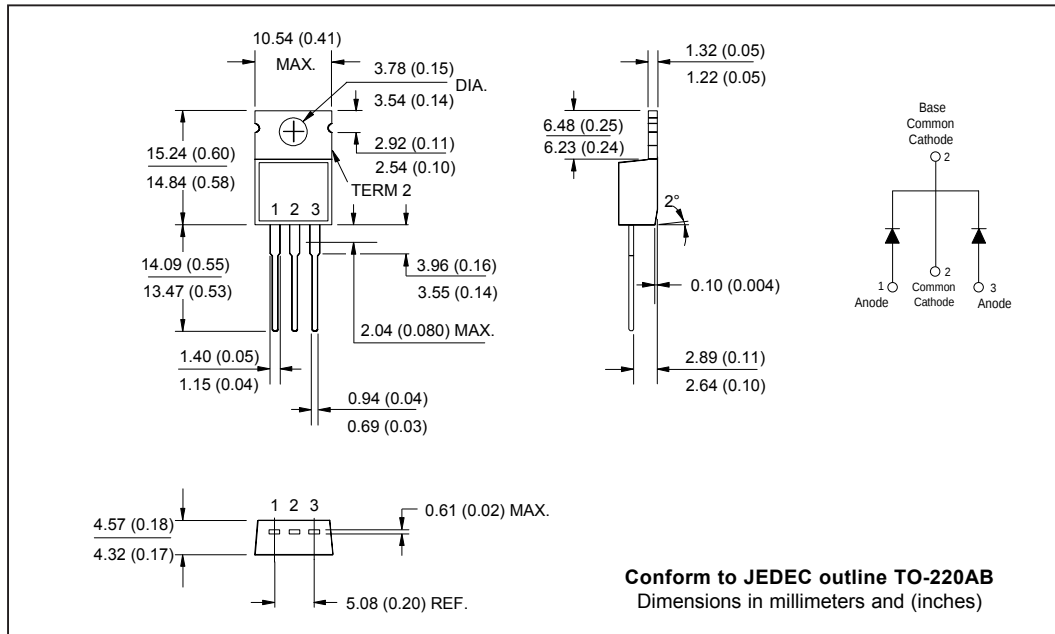
Fig. 7 - Max. Non-Repetitive Surge Current (Per Leg)

(2) Formula used: $T_C = T_J - (P_d + P_{d_{REV}}) \times R_{thJC}$;

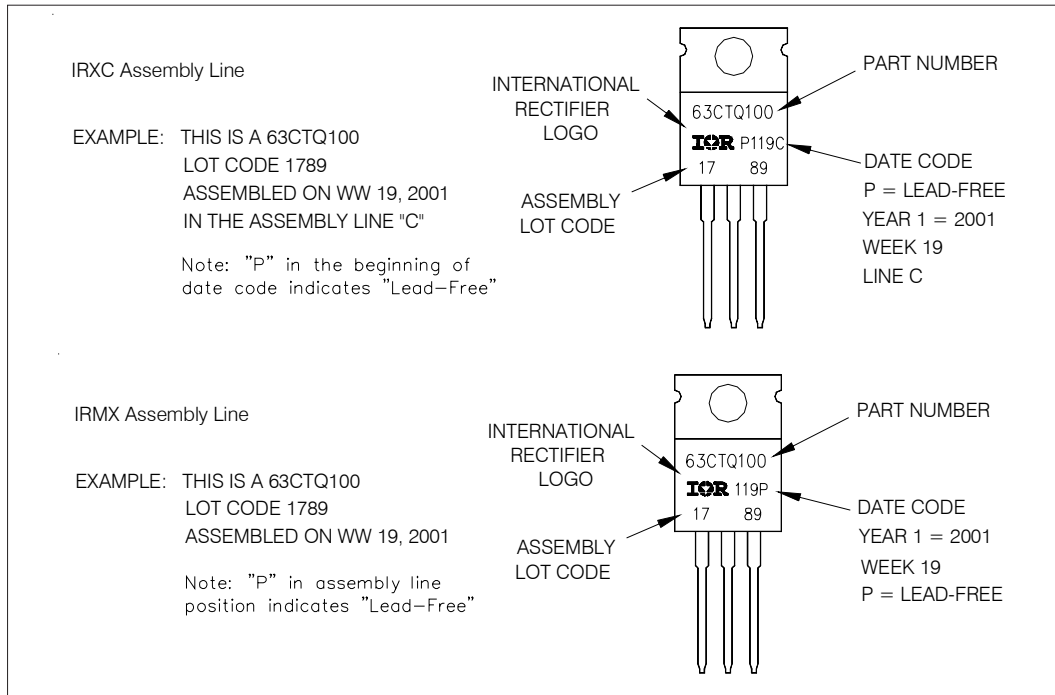
P_d = Forward Power Loss = $I_{F(AV)} \times V_{FM} @ (I_{F(AV)} / D)$ (see Fig. 6);

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

Outline Table



Part Marking Information



Ordering Information Table

Device Code

63	C	T	Q	100	PbF
1	2	3	4	5	6

- 1** - Current Rating (60A)
- 2** - Circuit Configuration
C = Common Cathode
- 3** - Package
T = TO-220
- 4** - Schottky "Q" Series
- 5** - Voltage Rating (100 = 100A)
- 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 and Lead-Free.
 Qualification Standards can be found on IR's Web site.

International
IR Rectifier

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