



30L30CT
30L30CTS
30L30CT-1

SCHOTTKY RECTIFIER

30 Amp


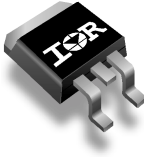

Major Ratings and Characteristics

Characteristics	Values	Units
$I_{F(AV)}$ Rectangular waveform	2x15	A
V_{RRM}	30	V
V_F @15Apk, $T_J=125^\circ\text{C}$ (Per Leg)	0.37	V
T_J range	-55 to 150	$^\circ\text{C}$

Description/Features

This center tap 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
- Center tap configuration
- Very 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

Case Styles		
<p>30L30CT</p>  <p>TO-220</p>	<p>30L30CTS</p>  <p>D²PAK</p>	<p>30L30CT-1</p>  <p>TO-262</p>

Voltage Ratings

Parameters	30L30CT 30L30CTS 30L30CT-1
V_R Max. DC Reverse Voltage (V)	30
V_{RWM} Max. Working Peak Reverse Voltage (V)	

Absolute Maximum Ratings

Parameters	Values	Units	Conditions
$I_{F(AV)}$ Max. Average Forward Current (Per Device Per Leg)	30 15	A	50% duty cycle @ $T_C = 140^\circ\text{C}$, rectangular wave form
I_{FSM} Max. Peak One Cycle Non-Repetitive Surge Current	1450 220	A	5 μs Sine or 3 μs Rect. pulse 10ms Sine or 6ms Rect. pulse Following any rated load condition and with rated V_{RWM} applied
E_{AS} Non-Repetitive Avalanche Energy (Per Leg)	125	mJ	$T_J = 25^\circ\text{C}$, $I_{AS} = 10$ Amps, $L = 2.5$ mH
I_{AR} Repetitive Avalanche Current (Per Leg)	10	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	Values	Units	Conditions
V_{FM} Max. Forward Voltage Drop (Per Leg) (1)	0.46	V	@ 15A
	0.57	V	@ 30A
	0.37	V	@ 15A
	0.50	V	@ 30A
I_{RM} Max. Reverse Leakage Current (Per Leg)	1.50	mA	$T_J = 25^\circ\text{C}$
	350	mA	$T_J = 125^\circ\text{C}$
C_T Max. Junction Capacitance (Per Leg)	1500	pF	$V_R = 5V_{DC}$ (test signal range 100Khz to 1Mhz) 25°C
L_S Typical Series Inductance (Per Leg)	8.0	nH	Measured lead to lead 5mm from package body
dv/dt Max. Voltage Rate of Change (Rated V_R)	10,000	V/ μs	

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

Thermal-Mechanical Specifications

Parameters	Values	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 (Per Leg)	1.5	$^\circ\text{C}/\text{W}$	DC operation
R_{thJC} Max. Thermal Resistance Junction to Case (Per Package)	0.8	$^\circ\text{C}/\text{W}$	DC operation
wt Approximate Weight	2(0.07)	g(oz.)	
T Mounting Torque	Min.	6(5)	Kg-cm (lbf-in)
	Max.	12(10)	

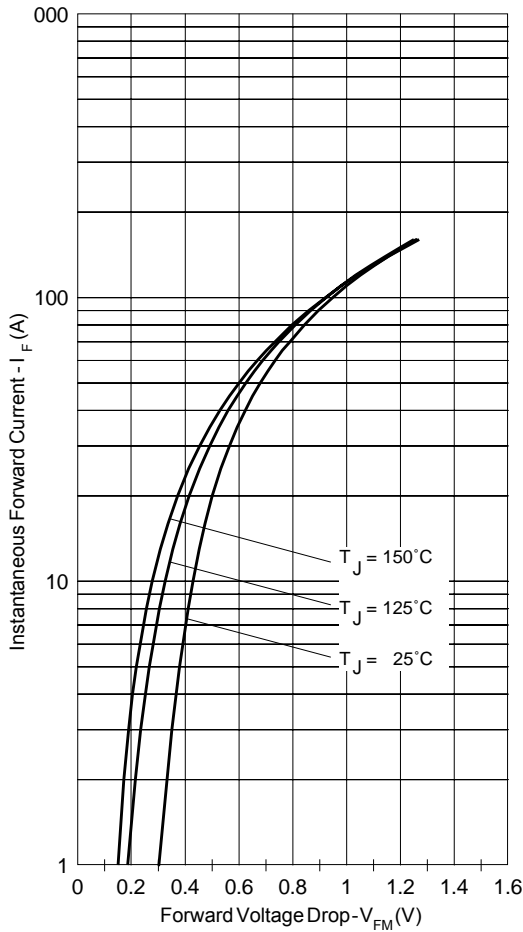


Fig. 1 - Maximum Forward Voltage Drop Characteristics

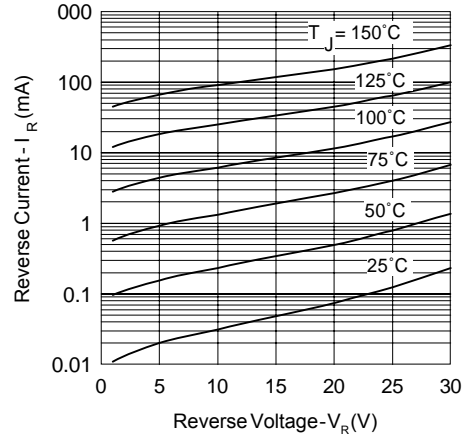


Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage

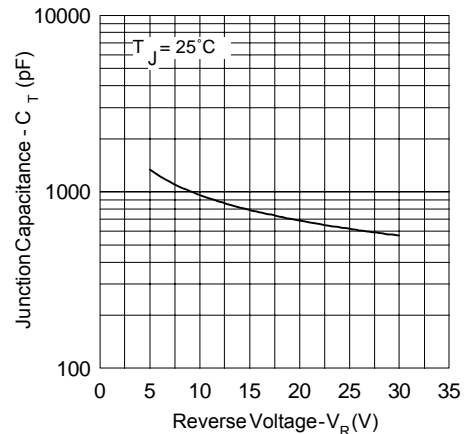


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

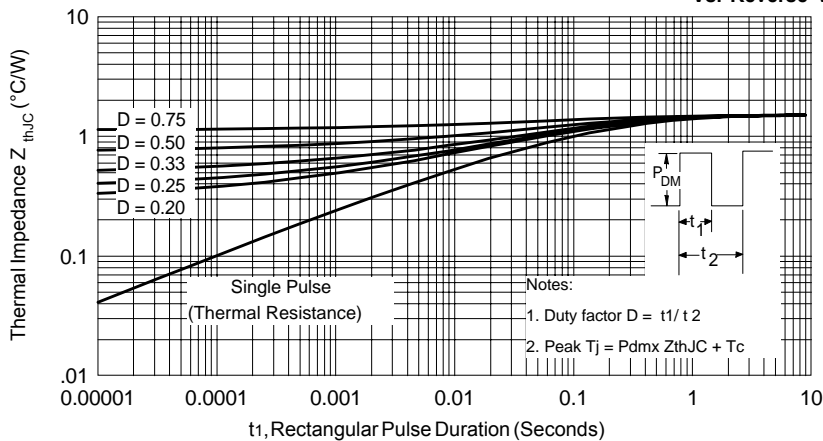


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics

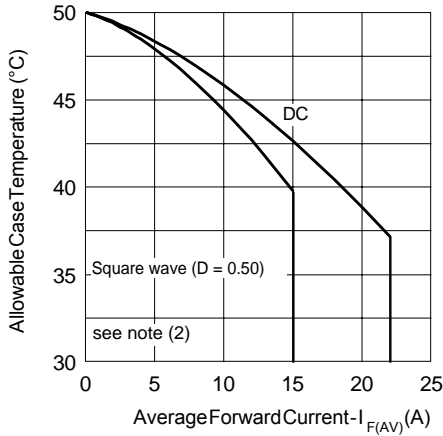


Fig. 5 - Max. Allowable Case Temperature Vs. Average Forward Current

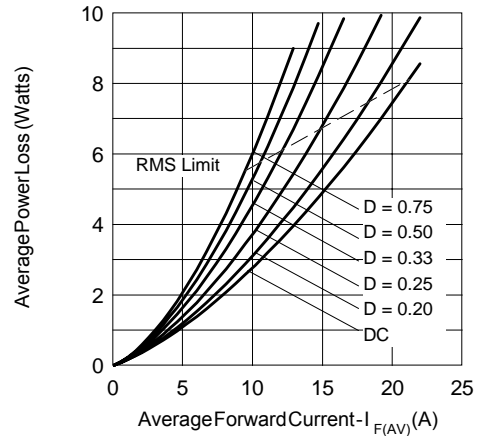


Fig. 6 - Forward Power Loss Characteristics

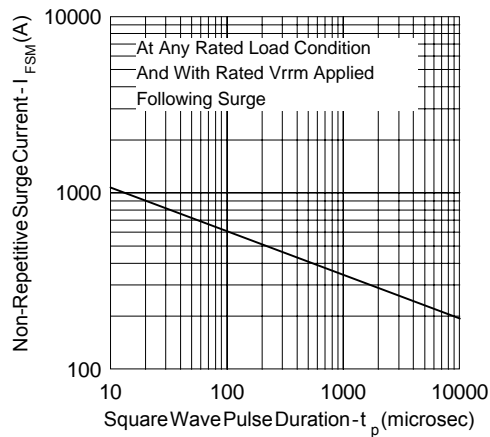
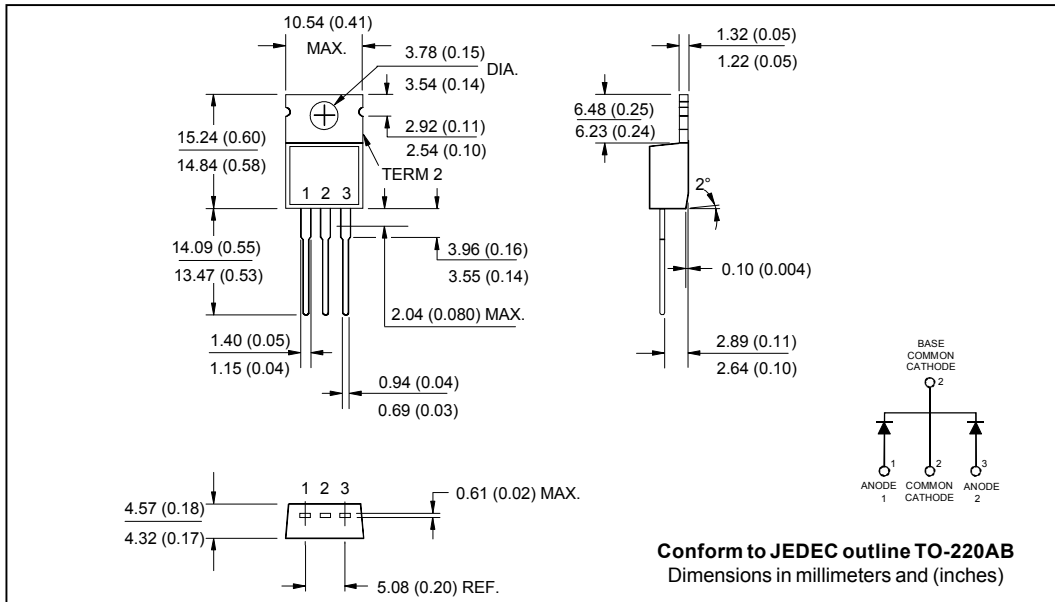


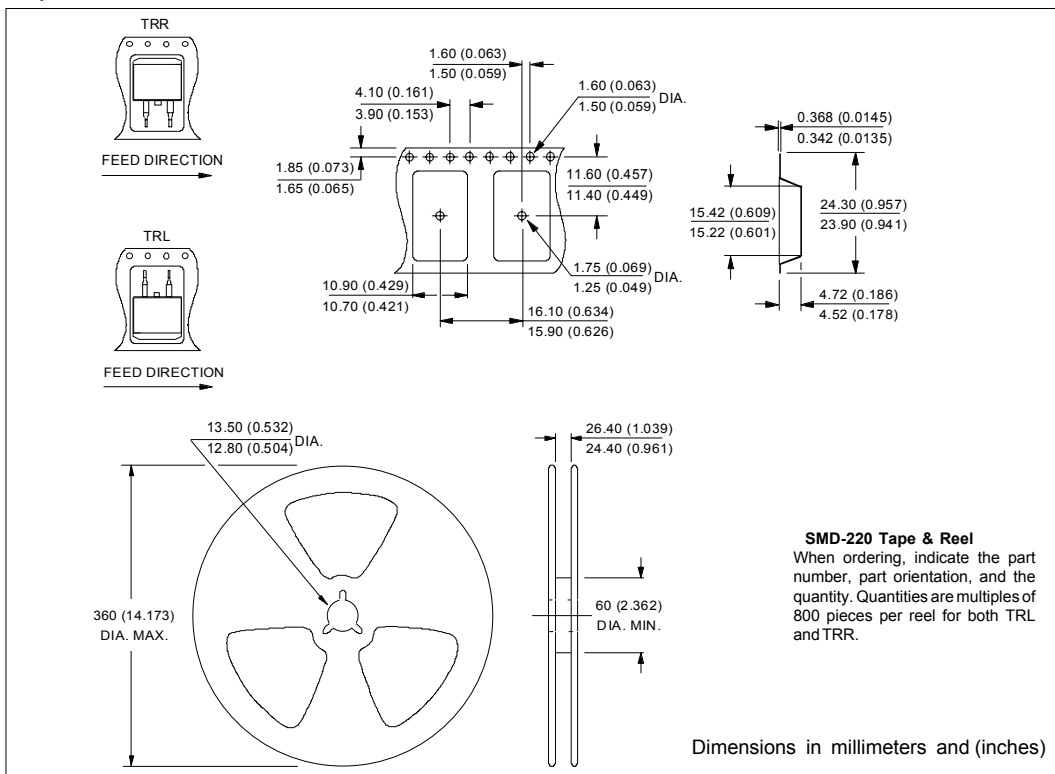
Fig. 7 - Max. Non-Repetitive Surge Current (Per Leg)

(2) Formula used: $T_C = T_J - Pd \times R_{thJC}$;
 $Pd = \text{Forward Power Loss} = I_{F(AV)} \times V_{FM} @ (I_{F(AV)} / D)$ (see Fig. 6)

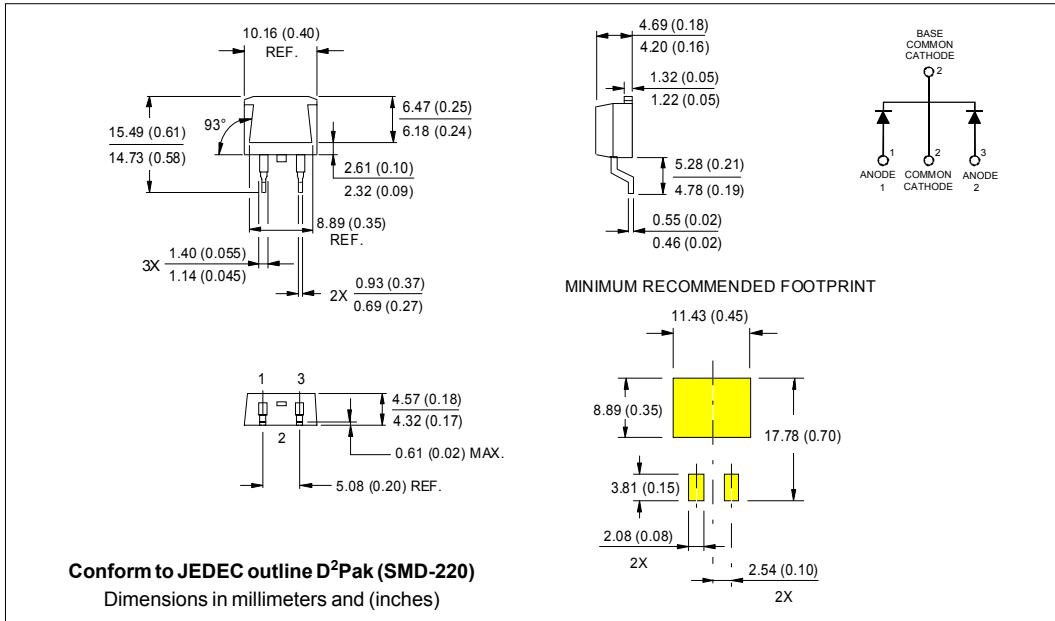
Outline Table



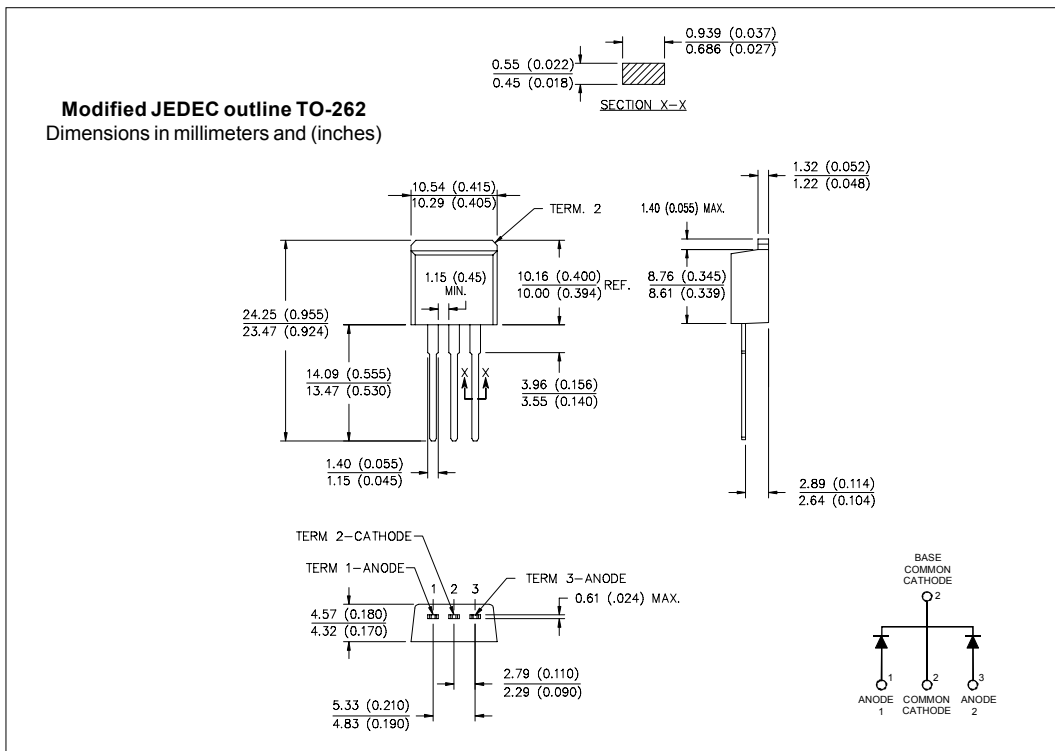
Tape & Reel Information



Outline Table



Outline Table



Ordering Information Table

Device Code					
30	L	30	C	T	-1
①	②	③	④	⑤	⑥
1	-	30 = Current Rating			
2	-	L = Schottky - L Series			
3	-	30 = Voltage Rating			
4	-	C = Common Cathode			
5	-	T = TO-220			
6	-	1 = TO-262			
		S = D ² Pak			

30L30CT

This model has been developed by
 Wizard SPICE MODEL GENERATOR (1999)
 (International Rectifier Corporation)
 contains Proprietary Information

SPICE Model Diode is composed by a
 simple diode plus paraladed VCG2T

.SUBCKT 30L30ct ANO CAT
 D1 ANO 1 DMOD (0.08936)

*Define diode model

.MODEL DMODD(IS=3.01789428908089E-04A,N=1.12506549677918,BV=35V,
 +IBV=0.40837541124234A,RS=0.000285952,CJO=3.65460570356249E-08,
 +VJ=0.934944724736772,XTI=2,EG=0.674450307828855)

*Implementation of VCG2T

VX 1 2 DC 0V

R1 2 CAT TRES 1E-6

.MODEL TRES RES(R=1,TC1=11.2856367229303)

GP1 ANO CAT VALUE={-ABS(I(VX))*(EXP(((((-2.138249E-03/11.28564)*(V(2,CAT)*1E6)/(I(VX)+1E-6)-
 1)))+1)*9.434315E-02*ABS(V(ANO,CAT)))-1}}

.ENDS 30L30ct

Thermal Model Subcircuit

.SUBCKT 30L30CT 5 1

CTHERM1	5	4	3.53E-1
CTHERM2	4	3	6.35E0
CTHERM3	3	2	5.15E+1
CTHERM4	2	1	4.08E+3

RTHERM1	5	4	3.15E-1
RTHERM2	4	3	6.15E-1
RTHERM1	3	2	3.7E-1
RTHERM1	2	1	1.98E-1

.ENDS 30L30CT