

TRENCH SCHOTTKY RECTIFIER
New GenIII D-61 Package

80 Amp

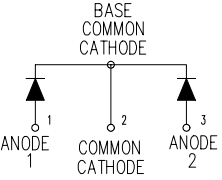
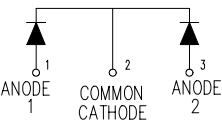
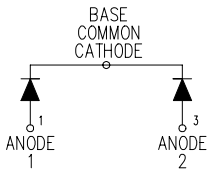
Major Ratings and Characteristics

Characteristics	Value	Units
$I_{F(AV)}$ Rectangular waveform	80	A
V_{RRM} range	20	V
I_{FSM} @tp=5μs sine	5300	A
V_F @40Apk, $T_J=150^{\circ}C$ (per leg)	0.21	V
T_J range	-55to150	$^{\circ}C$

Description/ Features

The center tap Schottky rectifier module series 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 module
- 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
- *New fully transfer-mould low profile, small footprint, high current package*

Case Styles		
80CNT...A  BASE COMMON CATHODE  ANODE 1 COMMON CATHODE ANODE 2 D61-8	80CNT...ASM  BASE COMMON CATHODE  ANODE 1 COMMON CATHODE ANODE 2 D61-8-SM	80CNT...ASL  BASE COMMON CATHODE  ANODE 1 COMMON CATHODE ANODE 2 D61-8-SL

80CNT020A

Bulletin PD-20699 rev. A 12/02

International
IOR Rectifier

Voltage Ratings

Part number	80CNT020A	
V _R Max. DC Reverse Voltage (V)	@ 125°C	20
	@ 150°C	13

Absolute Maximum Ratings

Parameters	Values	Units	Conditions
I _{F(AV)} Max. Average Forward Current (Per Leg) (Per Device)	40 80	A	50% duty cycle @ T _C = 137°C, rectangular wave form
I _{FSM} Max. Peak One Cycle Non-Repetitive Surge Current (Per Leg)	5300 700	A	5μs Sine or 3μs 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)	4.5	mJ	T _J = 25 °C, I _{AS} = 1 Amps, L = 4.5 mH
I _{AR} Repetitive Avalanche Current (Per Leg)	1	A	Current decaying linearly to zero in 1 μsec Frequency limited by T _J max. V _A = 1.5 x V _R typical

Electrical Specifications

Parameters	Typ	Max	Units	Conditions
V _{FM} Max. Forward Voltage Drop (Per Leg) (1)	0.33	0.37	V	@ 40A T _J = 25°C
	0.39	0.45		@ 80A
	0.24	0.27		@ 40A T _J = 125°C
	0.31	0.36		@ 80A
	0.21	0.25		@ 40A T _J = 150°C
	0.29	0.34		@ 80A
I _{RM} Max. Reverse Leakage Current (Per Leg) (1)	2.5	5.0	mA	T _J = 25°C V _R = rated V _R
	640	950		T _J = 125°C V _R = rated V _R
	480	750		T _J = 125°C V _R = 3.3V
	530	800		T _J = 125°C V _R = 5V
	1630	2500		T _J = 150°C V _R = 10V
C _T Max. Junction Capacitance (Per Leg)	-	5500	pF	V _R = 10V _{DC} (test signal range 100KHz to 1MHz) 25°C
L _S Typical Series Inductance (Per Leg)	-	5.5	nH	Measured lead to lead 5mm from package body
dv/dt Max. Voltage Rate of Change	-	10000	V/μs	(Rated V _R)

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

Thermal-Mechanical Specifications

Parameters	80CNT	Units	Conditions
T _J Max. Junction Temperature Range	-55 to 125	°C	
T _{stg} Max. Storage Temperature Range	-55 to 150	°C	
R _{thJC} Max. Thermal Resistance Junction to Case (Per Leg)	0.50	°C/W	DC operation
R _{thJC} Max. Thermal Resistance Junction to Case (Per Package)	0.42	°C/W	DC operation
R _{thCS} Typical Thermal Resistance, Case to Heatsink (D61-8 Only)	0.30	°C/W	Mounting surface, smooth and greased
wt Approximate Weight	7.8(0.28)	g(oz.)	
T Mounting Torque (D61-8 Only)	Min. 40(35)	Kg -cm (lbf-in)	
	Max. 58(50)		

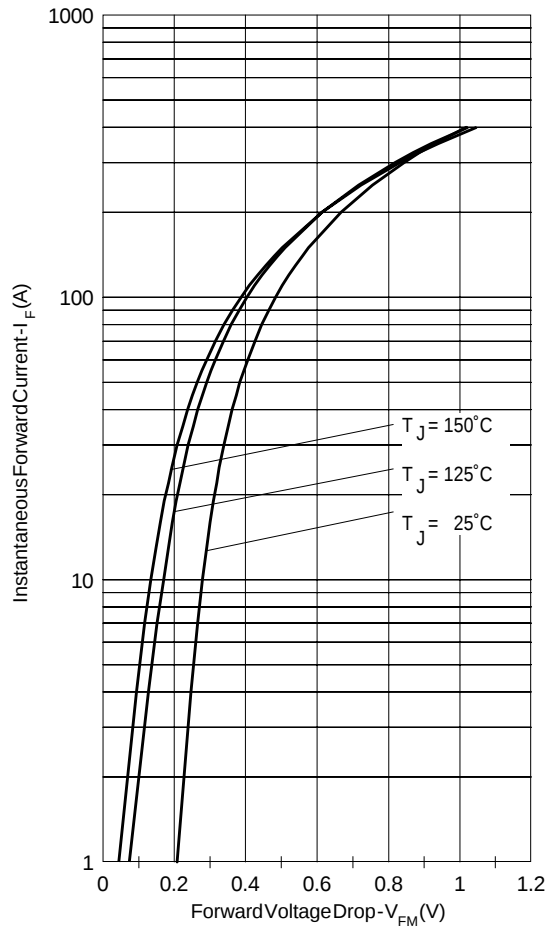


Fig. 1 - Max. Forward Voltage Drop Characteristics (Per Leg)

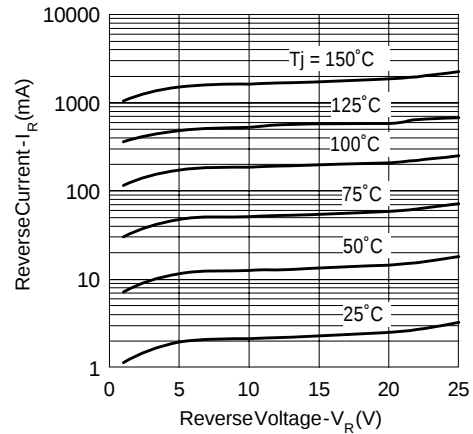


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage (Per Leg)

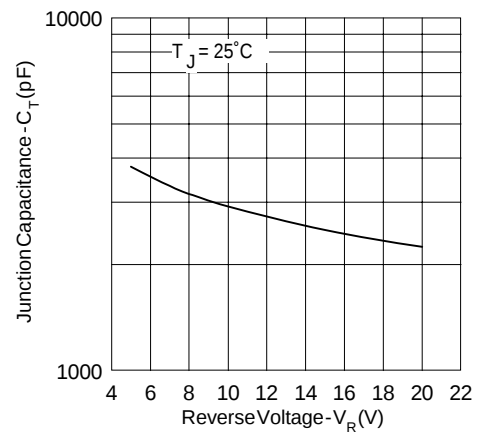


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

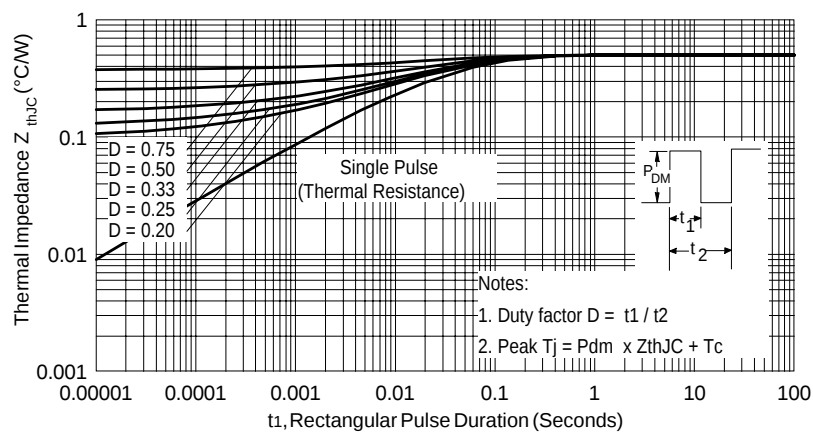


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics (Per Leg)

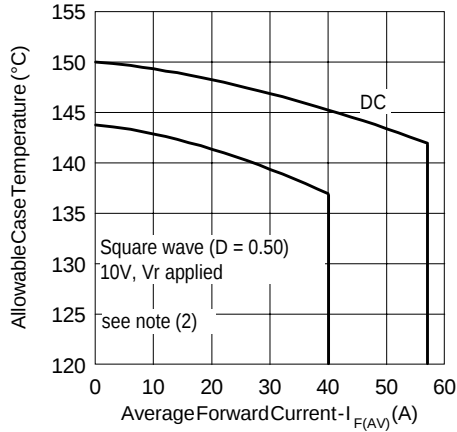


Fig. 5 - Max. Allowable Case Temperature Vs. Average Forward Current (Per Leg)

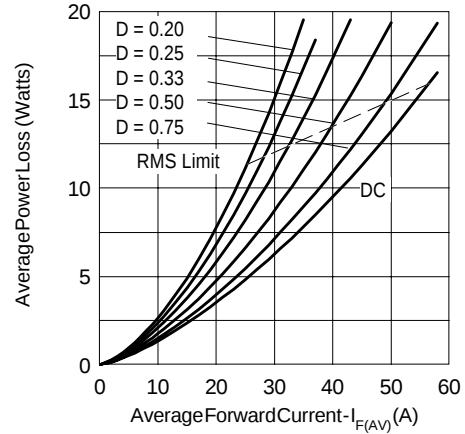


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

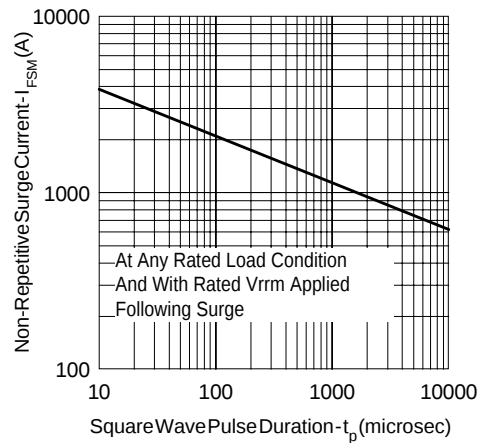


Fig. 7 - Max. Non-Repetitive Surge Current (Per Leg)

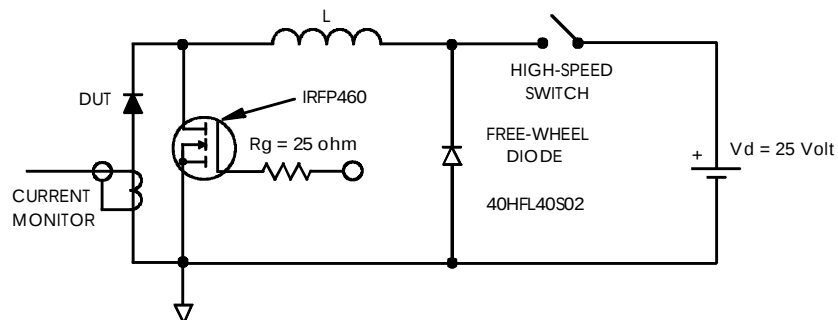


Fig. 8 - Unclamped Inductive Test Circuit

(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 = $V_{R1} \times I_R (1 - D)$; $I_R @ 10V, V_R$ applied

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.

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