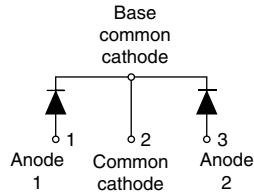
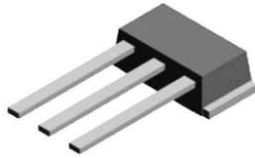
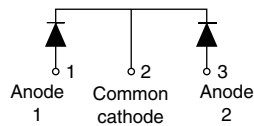
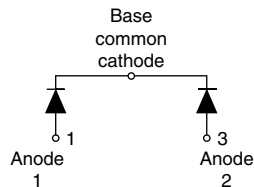


Schottky Rectifier

New Generation 3 D-61 Package, 2 x 40 A

81CNQ...A

D-61-8

81CNQ...ASM

D-61-8-SM

81CNQ...ASL

D-61-8-SL

FEATURES

- 175 °C T_J operation
- Center tap module
- Low forward voltage drop
- High frequency operation
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- Guard ring for enhanced ruggedness and long term reliability
- New fully transfer-mold low profile, small footprint, high current package
- Designed and qualified for industrial level

DESCRIPTION

The 81CNQ...A center tap Schottky rectifier module series 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, freewheeling diodes, and reverse battery protection.

PRODUCT SUMMARY

$I_{F(AV)}$	2 x 40 A
V_R	35 to 45 V

MAJOR RATINGS AND CHARACTERISTICS

SYMBOL	CHARACTERISTICS	VALUES	UNITS
$I_{F(AV)}$	Rectangular waveform	80	A
V_{RRM}		35 to 45	V
I_{FSM}	$t_p = 5 \mu s$ sine	4600	A
V_F	40 Apk, $T_J = 125^\circ C$ (per leg)	0.54	V
T_J	Range	- 55 to 175	°C

VOLTAGE RATINGS

PARAMETER	SYMBOL	81CNQ035A	81CNQ040A	81CNQ045A	UNITS
Maximum DC reverse voltage	V_R	35	40	45	V
Maximum working peak reverse voltage	V_{RWM}				

ABSOLUTE MAXIMUM RATINGS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum average forward current See fig. 5	$I_{F(AV)}$	50 % duty cycle at $T_C = 141\text{ }^\circ\text{C}$, rectangular waveform		80	A
Maximum peak one cycle non-repetitive surge current per leg See fig. 7	I_{FSM}	5 μs sine or 3 μs rect. pulse	Following any rated load condition and with rated V_{RRM} applied	4600	
		10 ms sine or 6 ms rect. pulse		790	
Non-repetitive avalanche energy per leg	E_{AS}	$T_J = 25\text{ }^\circ\text{C}$, $I_{AS} = 8\text{ A}$, $L = 1.7\text{ mH}$		54	mJ
Repetitive avalanche current per leg	I_{AR}	Current decaying linearly to zero in 1 μs Frequency limited by T_J maximum $V_A = 1.5 \times V_R$ typical		8	A

ELECTRICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum forward voltage drop per leg See fig. 1	$V_{FM}^{(1)}$	40 A	$T_J = 25\text{ }^\circ\text{C}$	0.60	V
		80 A		0.74	
		40 A	$T_J = 125\text{ }^\circ\text{C}$	0.54	
		80 A		0.66	
Maximum reverse leakage current per leg See fig. 2	$I_{RM}^{(1)}$	$T_J = 25\text{ }^\circ\text{C}$	$V_R = \text{Rated } V_R$	5	mA
		$T_J = 125\text{ }^\circ\text{C}$		45	
Maximum junction capacitance per leg	C_T	$V_R = 5 V_{DC}$ (test signal range 100 kHz to 1 MHz) $25\text{ }^\circ\text{C}$		2600	pF
Typical series inductance per leg	L_S	Measured lead to lead 5 mm from package body		5.5	nH
Maximum voltage rate of change	dV/dt	Rated V_R		10 000	V/ μs

Note(1) Pulse width < 300 μs , duty cycle < 2 %



THERMAL - MECHANICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS	
Maximum junction and storage temperature range	T_J, T_{Stg}		- 55 to 175	°C	
Maximum thermal resistance, junction to case per leg	R_{thJC}	DC operation See fig. 4	0.85	°C/W	
Maximum thermal resistance, junction to case per package		DC operation	0.42		
Typical thermal resistance, case to heatsink (D-61-8 only)	R_{thCS}	Mounting surface, smooth and greased Device flatness < 5 mils	0.30		
Approximate weight			7.8	g	
			0.28	oz.	
Mounting torque (D-61-8 only)	minimum		40 (35)	kgf · cm (lbf · in)	
	maximum		58 (50)		
Marking device		Case style D-61-8	81CNQ035A		
			81CNQ040A		
			81CNQ045A		
		Case style D-61-8-SM		81CNQ035ASM	
				81CNQ040ASM	
				81CNQ045ASM	
		Case style D-61-8-SL		81CNQ035ASL	
				81CNQ040ASL	
				81CNQ045ASL	

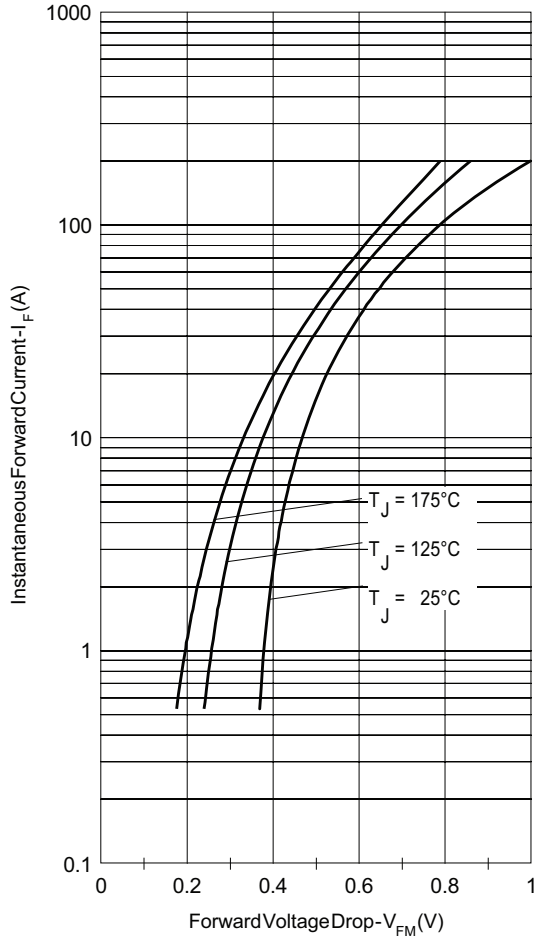


Fig. 1 - Maximum Forward Voltage Drop Characteristics (Per Leg)

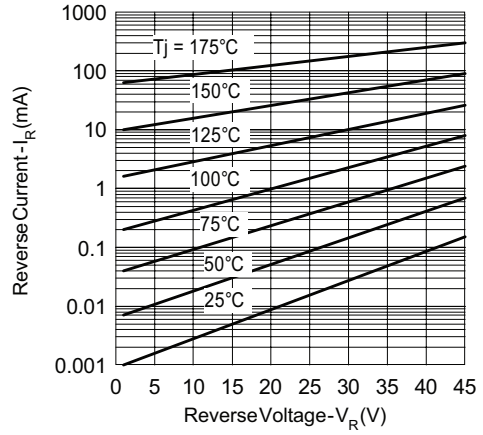


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage (Per Leg)

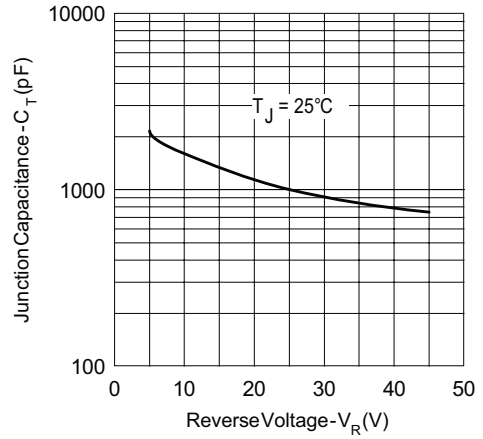


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage (Per Leg)

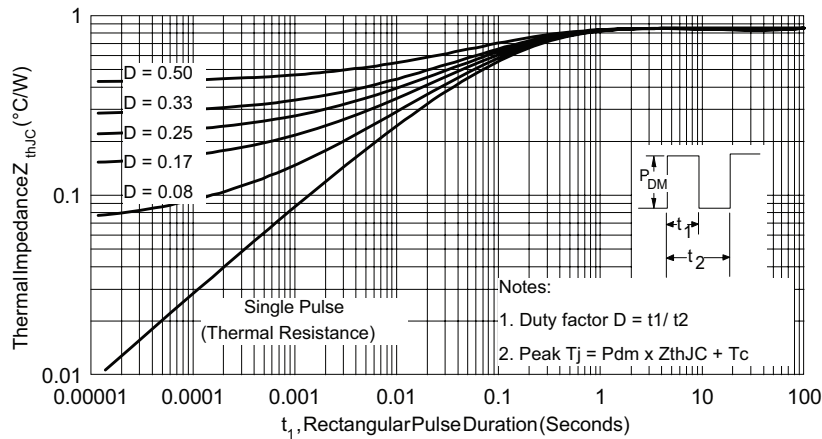


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics (Per Leg)

Schottky Rectifier New Generation 3 D-61 Package, 2 x 40 A

Vishay High Power Products

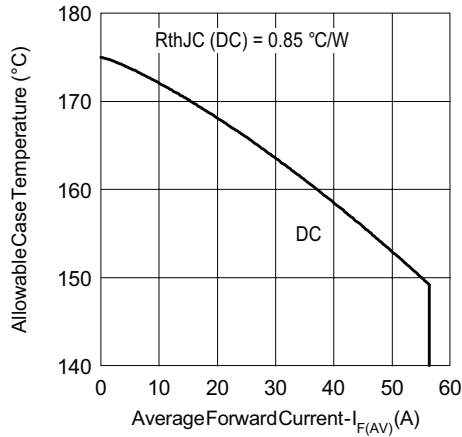


Fig. 5 - Maximum Allowable Case Temperature vs. Average Forward Current (Per Leg)

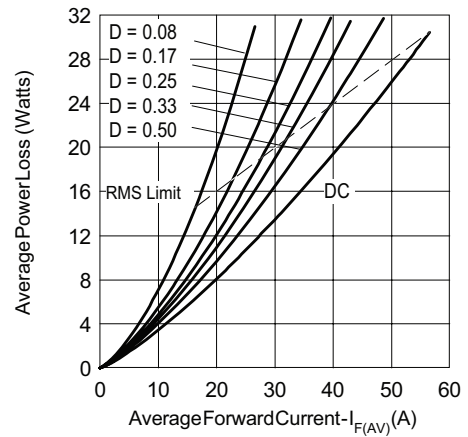


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

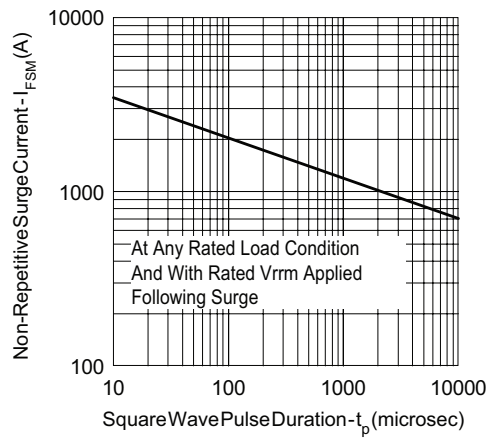


Fig. 7 - Maximum Non-Repetitive Surge Current (Per Leg)

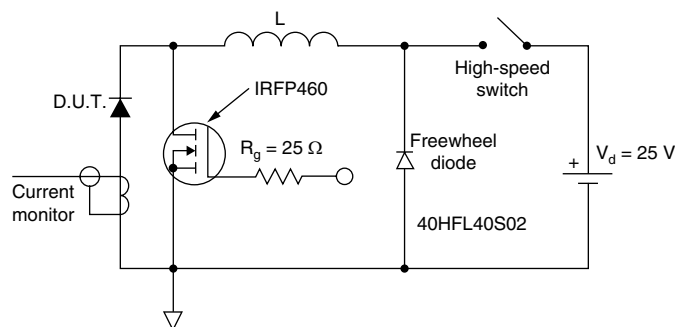


Fig. 8 - Unclamped Inductive Test Circuit