

International IR Rectifier

82CNQ030A

SCHOTTKY RECTIFIER
New GenIII D-61 Package

80 Amp

Major Ratings and Characteristics

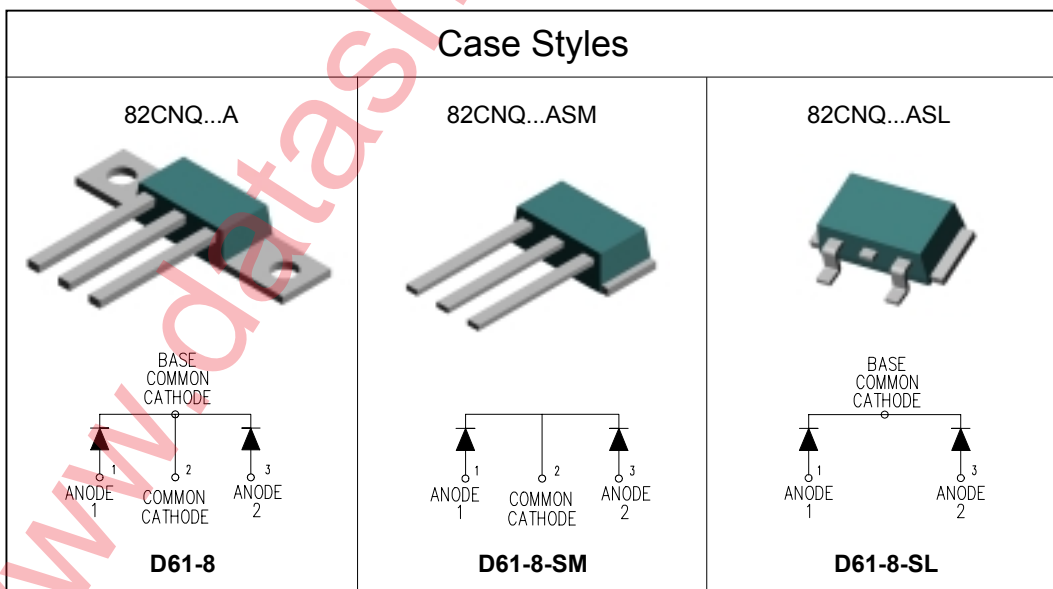
Characteristics	82CNQ030A	Units
$I_{F(AV)}$ Rectangular waveform	80	A
V_{RRM}	30	V
I_{FSM} @tp = 5 μ s sine	5100	A
V_F @40Apk, $T_J = 125^\circ\text{C}$ (per leg)	0.37	V
T_J range	-55 to 150	$^\circ\text{C}$

Description/Features

The 82CNQ030A center tap Schottky rectifier module has been optimized for very low forward voltage drop, with moderate leakage. The proprietary barrier technology allows for reliable operation up to 150 $^\circ\text{C}$ junction temperature. Typical applications are in switching power supplies, converters, free-wheeling diodes, and reverse battery protection.

- 150 $^\circ\text{C}$ T_J operation
- Dual 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-mold low profile, small footprint, high current package*

Case Styles



Voltage Ratings

Part number	82CNQ030A
V_R Max. DC Reverse Voltage (V)	30
V_{RWM} Max. Working Peak Reverse Voltage (V)	

Absolute Maximum Ratings

Parameters	82CNQ	Units	Conditions
$I_{F(AV)}$ Max. Average Forward Current * See Fig. 5	80	A	50% duty cycle @ $T_C = 119^\circ\text{C}$, rectangular waveform
I_{FSM} Max. Peak One Cycle Non-Repetitive Surge Current (Per Leg) * See Fig. 7	5100	A	Following any rated load condition and with rated V_{RWM} applied
	880		
E_{AS} Non-Repetitive Avalanche Energy (Per Leg)	36	mJ	$T_J = 25^\circ\text{C}$, $I_{AS} = 8$ Amps, $L = 1.12$ mH
I_{AR} Repetitive Avalanche Current (Per Leg)	8	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	82CNQ	Units	Conditions
V_{FM} Max. Forward Voltage Drop (Per Leg) * See Fig. 1 (1)	0.47	V	@ 40A $T_J = 25^\circ\text{C}$
	0.55	V	@ 80A
	0.37	V	@ 40A $T_J = 125^\circ\text{C}$
	0.47	V	@ 80A
I_{RM} Max. Reverse Leakage Current (Per Leg) * See Fig. 2 (1)	5	mA	$T_J = 25^\circ\text{C}$ $V_R = \text{rated } V_R$
	280	mA	$T_J = 125^\circ\text{C}$
C_T Max. Junction Capacitance (Per Leg)	3700	pF	$V_R = 5V_{DC}$, (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 (Rated V_R)	10,000	V/ μs	

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

Thermal-Mechanical Specifications

Parameters	82CNQ	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)	0.85	$^\circ\text{C/W}$	DC operation * See Fig. 4
R_{thJC} Max. Thermal Resistance Junction to Case (Per Package)	0.42	$^\circ\text{C/W}$	DC operation
R_{thCS} Typical Thermal Resistance, Case to Heatsink (D61-8 Only)	0.30	$^\circ\text{C/W}$	Mounting surface, smooth and greased Device flatness < 5 mils
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)	

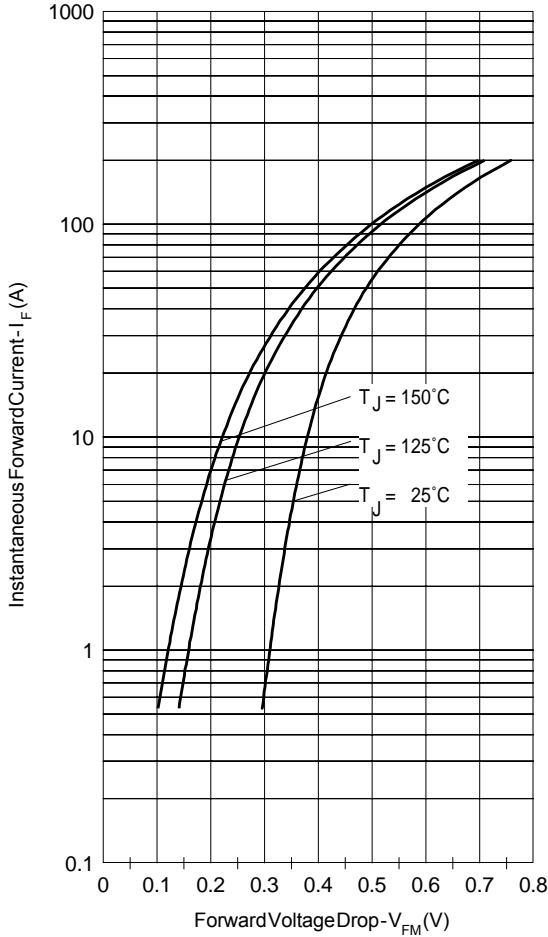


Fig. 1 - Max. Forward Voltage Drop Characteristics (Per Leg)

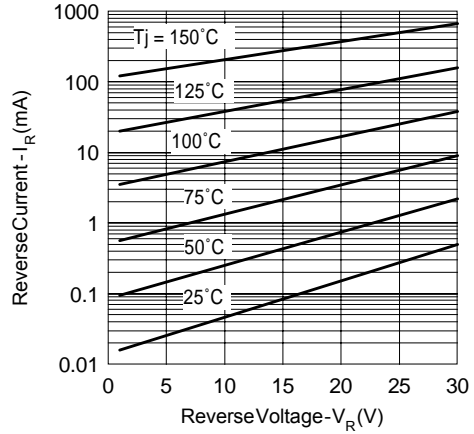


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage (Per Leg)

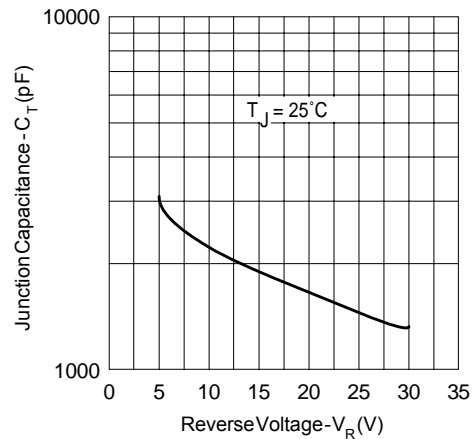


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

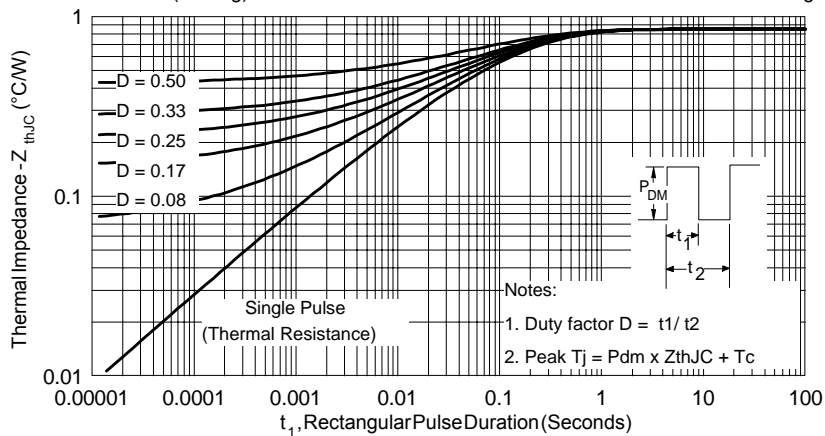


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics (Per Leg)

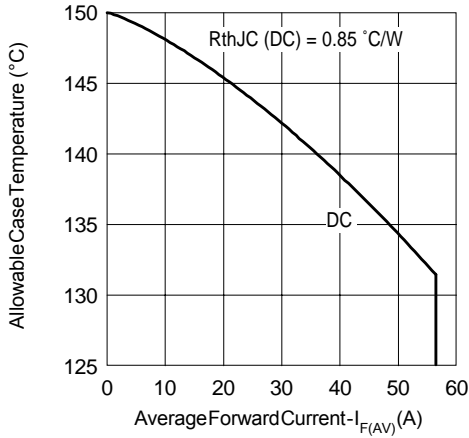


Fig. 5- Max. Allowable Case Temperature Vs. Average Forward Current (Per Leg)

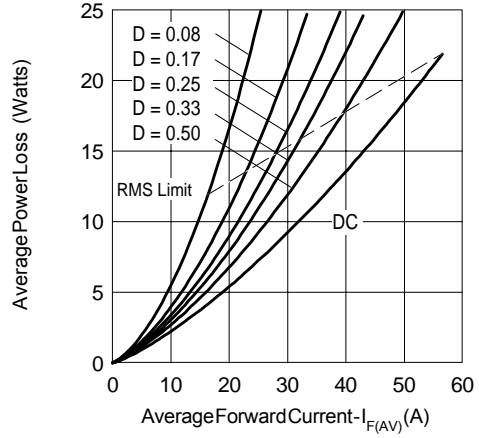


Fig. 6- Forward Power Loss Characteristics (Per Leg)

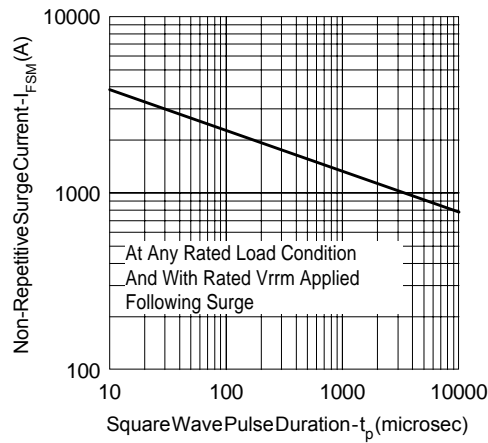


Fig. 7- Max. Non-Repitative Surge Current (Per Leg)

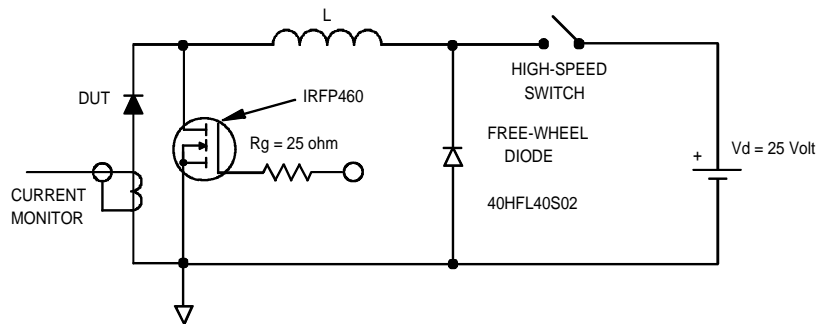
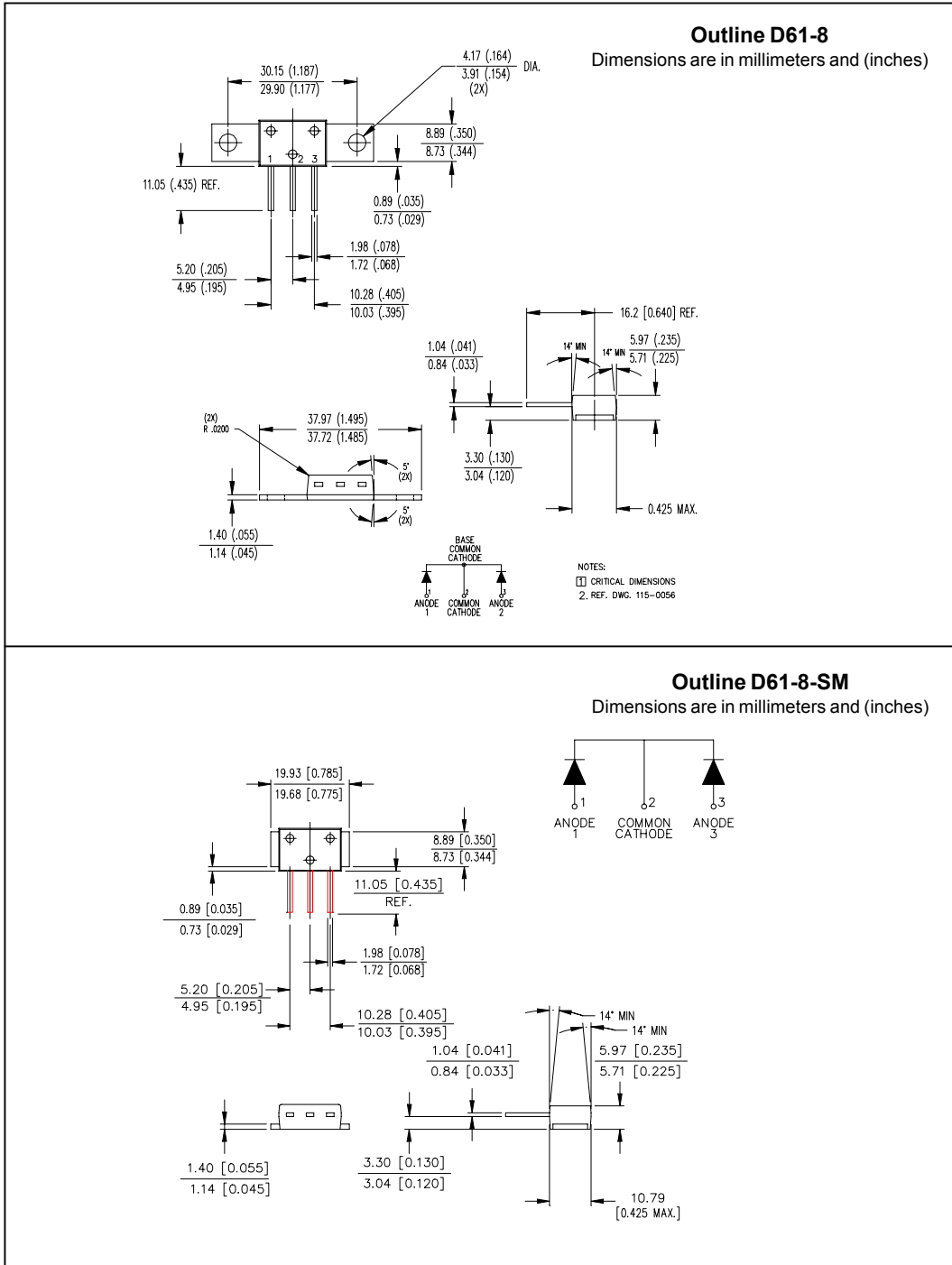
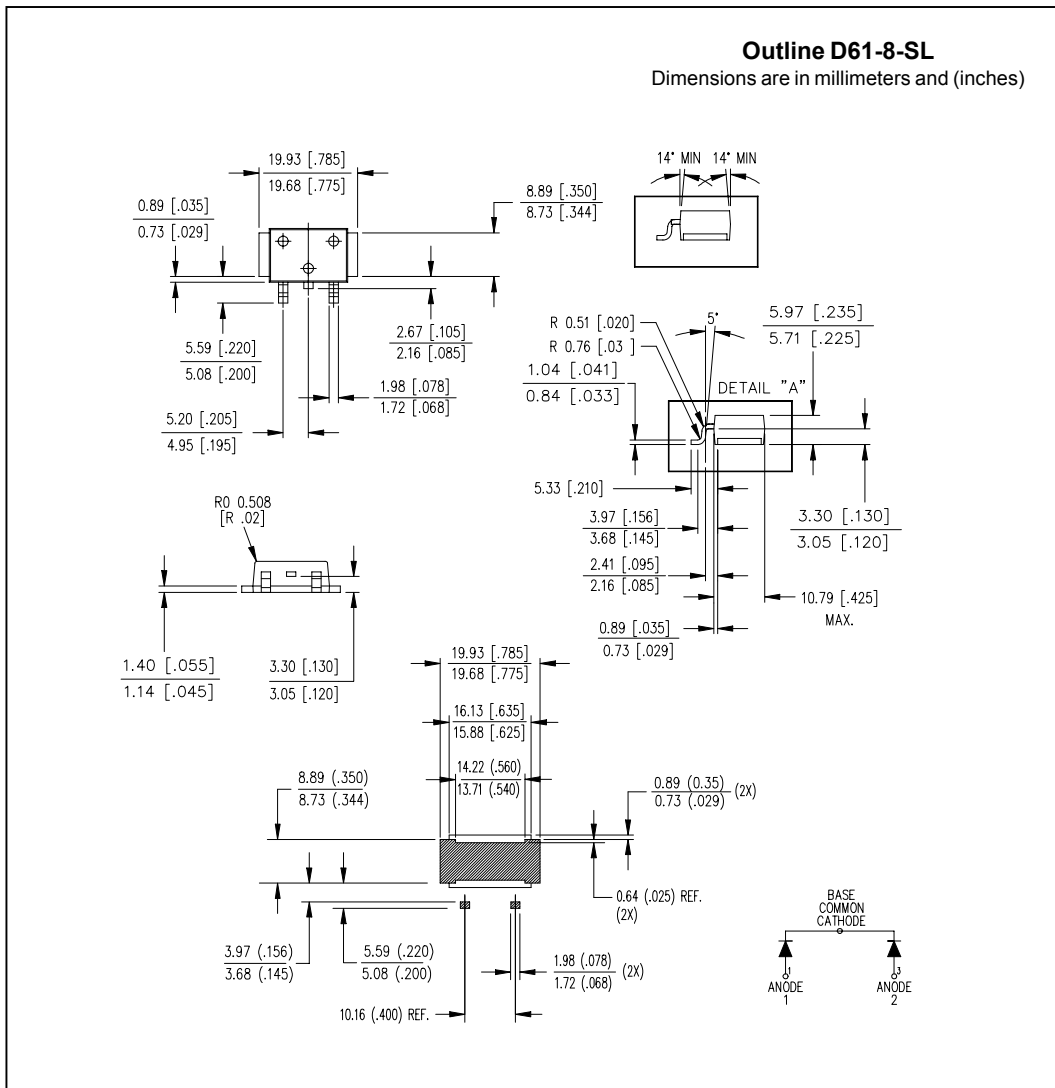


Fig. 8- Unclamped Inductive Test Circuit

Outline Table

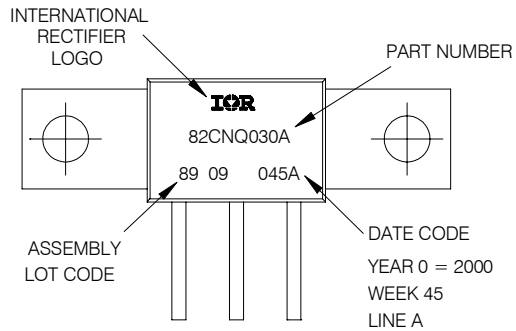


Outline Table



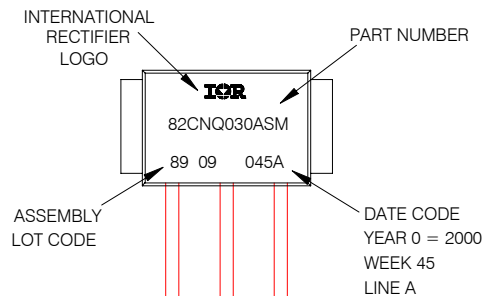
Part Marking Information

EXAMPLE: THIS IS A 82CNQ030A WITH
 LOT CODE 89 09
 ASSEMBLED ON WW 45, 2000
 IN THE ASSEMBLY LINE "A"



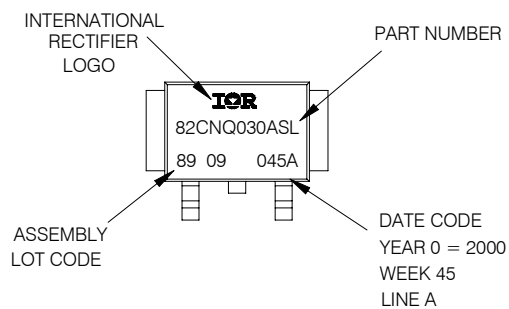
D61-8

EXAMPLE: THIS IS A 82CNQ030ASM WITH
 LOT CODE 89 09
 ASSEMBLED ON WW 45, 2000
 IN THE ASSEMBLY LINE "A"



D61-8-SM

EXAMPLE: THIS IS A 82CNQ030ASL WITH
 LOT CODE 89 09
 ASSEMBLED ON WW 45, 2000
 IN THE ASSEMBLY LINE "A"



D61-8-SL

82CNQ030A

Bulletin PD-20041 rev. B 09/01

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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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