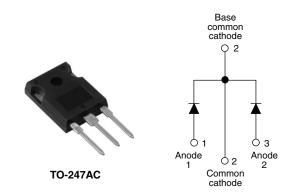
### Vishay High Power Products

## Schottky Rectifier, 2 x 20 A



**SHA** 

PRODUCT SUMMARY			
I <sub>F(AV)</sub>	2 x 20 A		
V <sub>R</sub>	15 V		
I <sub>RM</sub>	600 mA at 100 °C		

#### **FEATURES**

- 125 °C T<sub>J</sub> operation ( $V_R < 5 V$ )
- · Center tap module
- Optimized for OR-ing applications
- Ultra 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
- Designed and qualified for industrial level

#### DESCRIPTION

The STPS40L15CW center tap Schottky rectifier module has been optimized for ultra low forward voltage drop specifically for the OR-ing of parallel power supplies. The proprietary barrier technology allows for reliable operation up to 125 °C junction temperature. Typical applications are in parallel switching power supplies, converters, reverse battery protection, and redundant power subsystems.

MAJOR RATINGS AND CHARACTERISTICS					
SYMBOL	CHARACTERISTICS	CHARACTERISTICS VALUES			
I <sub>F(AV)</sub>	Rectangular waveform	40	A		
V <sub>RRM</sub>		15	V		
I <sub>FSM</sub>	t <sub>p</sub> = 5 μs sine	700	A		
V <sub>F</sub>	19 Apk, $T_J = 125 \ ^{\circ}C$ (per leg, typical)	0.25	V		
TJ		- 55 to 125	٦°		

VOLTAGE RATINGS				
PARAMETER	SYMBOL	TEST CONDITIONS	STPS40L15CW	UNITS
Maximum DC reverse voltage	V <sub>R</sub>	T₁= 100 °C	15	V
Maximum working peak reverse voltage	V <sub>RWM</sub>	1j=100 C	15	v

ABSOLUTE MAXIMUM RATINGS					
PARAMETER	SYMBOL	L TEST CONDITIONS VALUES UN		UNITS	
Maximum average forward current per leg		E0.9% duty avala at T = .90.90 reatongular wavafarm		20	
See fig. 5 per device	$I_{F(AV)}$ 50 % duty cycle at T <sub>C</sub> = 86 °C, rectangular waveform 4		40		
Maximum peak one cycle		5 µs sine or 3 µs rect. pulse	Following any rated load condition and with	700	A
non-repetitive surge current per leg See fig. 7	IFSM	10 ms sine or 6 ms rect. pulse	rated V <sub>RRM</sub> applied	330	
Non-repetitive avalanche energy per leg	E <sub>AS</sub>	T <sub>J</sub> = 25 °C, I <sub>AS</sub> = 2 A, L = 5 mH	1	10	mJ
Repetitive avalanche current per leg	I <sub>AR</sub>	Current decaying linearly to ze Frequency limited by T <sub>J</sub> maxim		2	А

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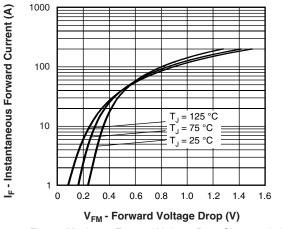
ELECTRICAL SPECIFICATIONS						
PARAMETER	SYMBOL	TEST CONDITIONS		TYP.	MAX.	UNITS
Maximum forward voltage drop per leg See fig. 1	V <sub>FM</sub> <sup>(1)</sup>	19 A	T <sub>J</sub> = 25 °C	-	0.41	v
		40 A		-	0.52	
		19 A	T <sub>J</sub> = 125 °C	0.25	0.33	
		40 A		0.37	0.50	
Reverse leakage current per leg	DM (1)	T <sub>J</sub> = 25 °C	V <sub>R</sub> = Rated V <sub>R</sub>	-	10	- mA
See fig. 2		T <sub>J</sub> = 100 °C		-	600	
Threshold voltage	V <sub>F(TO)</sub>	$T_J = T_J maximum$		0.1	82	V
Forward slope resistance	r <sub>t</sub>			7	.6	mΩ
Maximum junction capacitance per leg	CT	$V_{R} = 5 V_{DC}$ (test signal range 100 kHz to 1 MHz) 25 °C		-	2000	pF
Typical series inductance per leg	L <sub>S</sub>	Measured lead to lead 5 mm from package body		8	-	nH
Maximum voltage rate of change	dV/dt	Rated V <sub>R</sub>		10	000	V/µs

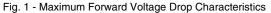
Note

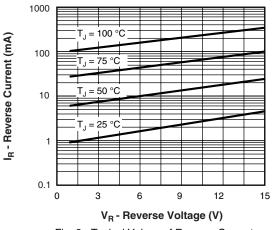
 $^{(1)}\,$  Pulse width < 300  $\mu s,$  duty cycle < 2 %

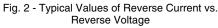
THERMAL - MECHANICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS	
Maximum junction temperature range	TJ	TJ		°C	
Maximum storage temperature range	T <sub>Stg</sub>		- 55 to 150	C	
Maximum thermal resistance, junction to case per leg	Р	DC operation See fig. 4	1.4		
Maximum thermal resistance, junction to case per package	- R <sub>thJC</sub>	DC operation	0.7	°C/W	
Typical thermal resistance, case to heatsink	R <sub>thCS</sub>	Mounting surface, smooth and greased	0.24		
Approvimento uscialat			6	g	
Approximate weight			0.21	OZ.	
Maximum minimum			6 (5)	kgf ⋅ cm	
Mounting torque maximum		Non-lubricated threads	12 (10)	(lbf ⋅ in)	
Marking device		Case style TO-247AC (JEDEC)	STPS40	L15CW	

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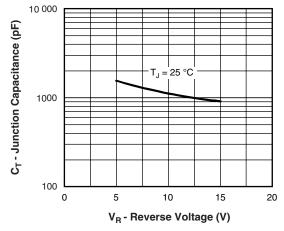


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage

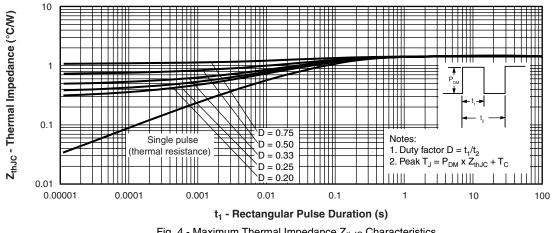
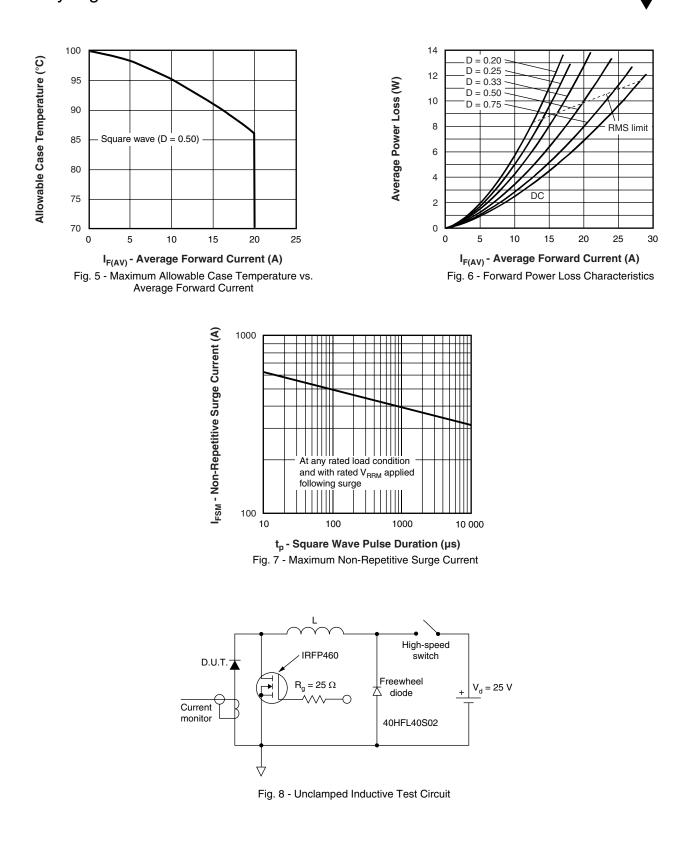


Fig. 4 - Maximum Thermal Impedance Z<sub>thJC</sub> Characteristics

## STPS40L15CW

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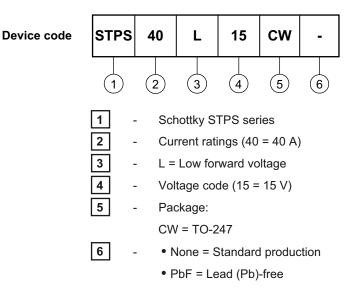


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### ORDERING INFORMATION TABLE



Tube standard pack quantity: 25 pieces

LINKS TO RELATED DOCUMENTS			
Dimensions http://www.vishay.com/doc?95223			
Part marking information	http://www.vishay.com/doc?95226		



Vishay

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