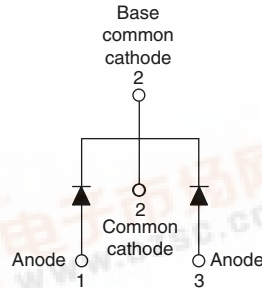


Schottky Rectifier, 2 x 15 A



TO-220AB



FEATURES

- 150 °C T_J operation
- Center tap configuration
- Very 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
- Lead (Pb)-free ("PbF" suffix)
- Designed and qualified for industrial level



RoHS*
COMPLIANT

PRODUCT SUMMARY

$I_{F(AV)}$	2 x 15 A
V_R	30 V

DESCRIPTION

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, freewheeling diodes, and reverse battery protection.

MAJOR RATINGS AND CHARACTERISTICS

SYMBOL	CHARACTERISTICS	VALUES	UNITS
$I_{F(AV)}$	Rectangular waveform	2 x 15	A
V_{RRM}		30	V
V_F	15 Apk, $T_J = 125$ °C (per leg)	0.37	V
T_J	Range	- 55 to 150	°C

VOLTAGE RATINGS

PARAMETER	SYMBOL	STPS30L30CTPbF	UNITS
Maximum DC reverse voltage	V_R	30	V
Maximum working peak reverse voltage	V_{RWM}		

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum average forward current — per device	$I_{F(AV)}$	50 % duty cycle at $T_C = 140$ °C, rectangular waveform	30	A
Maximum average forward current — per leg			15	
Maximum peak one cycle non-repetitive surge current	I_{FSM}	5 μ s sine or 3 μ s rect. pulse	1450	
		10 ms sine or 6 ms rect. pulse	220	
Non-repetitive avalanche energy per leg	E_{AS}	$T_J = 25$ °C, $I_{AS} = 2$ A, $L = 7.5$ mH	15	mJ
Repetitive avalanche current per leg	I_{AR}	Current decaying linearly to zero in 1 μ s Frequency limited by T_J maximum $V_A = 1.5 \times V_R$ typical	2	A

* Pb containing terminations are not RoHS compliant, exemptions may apply

ELECTRICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum forward voltage drop per leg	$V_{FM}^{(1)}$	15 A	$T_J = 25\text{ }^{\circ}\text{C}$	0.46	V
		30 A		0.57	
		15 A	$T_J = 125\text{ }^{\circ}\text{C}$	0.37	
		30 A		0.50	
Maximum reverse leakage current per leg	I_{RM}	$T_J = 25\text{ }^{\circ}\text{C}$	$V_R = \text{Rated } V_R$	1.50	mA
		$T_J = 125\text{ }^{\circ}\text{C}$		350	
Maximum junction capacitance per leg	C_T	$V_R = 5\text{ }V_{DC}$ (test signal range 100 kHz to 1 MHz) $25\text{ }^{\circ}\text{C}$		1500	pF
Typical series inductance per leg	L_S	Measured lead to lead 5 mm from package body		8.0	nH
Maximum voltage rate of change	dV/dt	Rated V_R		10 000	V/ μ s

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

THERMAL - MECHANICAL SPECIFICATIONS				
PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum junction and storage temperature range	T _J , T _{Stg}		- 55 to 150	°C
Maximum thermal resistance, junction to case per leg	R _{thJC}	DC operation	1.5	°C/W
Maximum thermal resistance, junction to case per package			0.8	
Approximate weight			2	g
			0.07	oz.
Mounting torque	minimum		6 (5)	kgf · cm (lbf · in)
	maximum		12 (10)	
Marking device		Case style TO-220AB	STPS30L30CT	

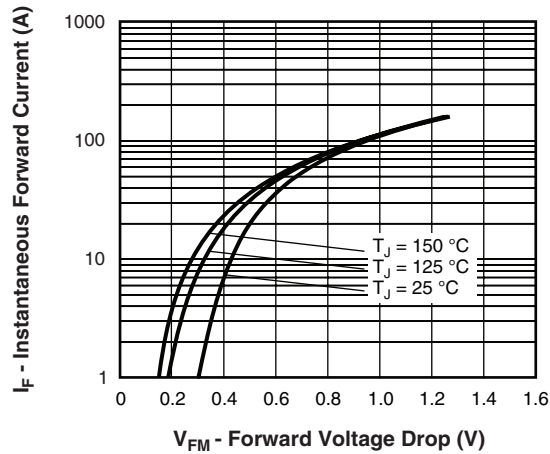


Fig. 1 - Maximum Forward Voltage Drop Characteristics

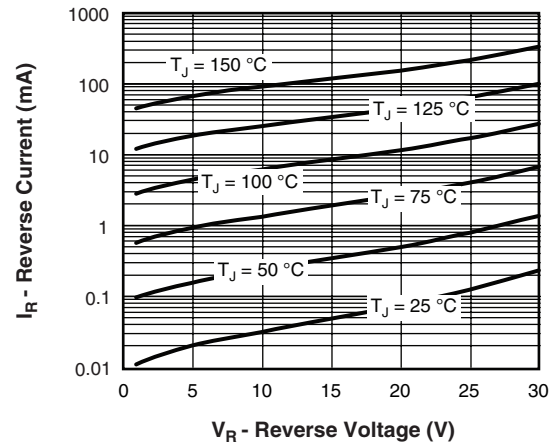


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage

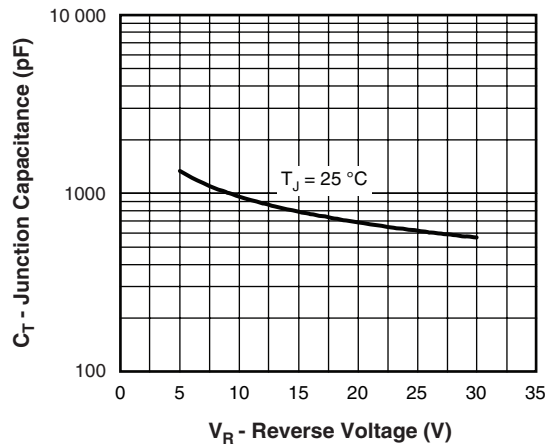


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage

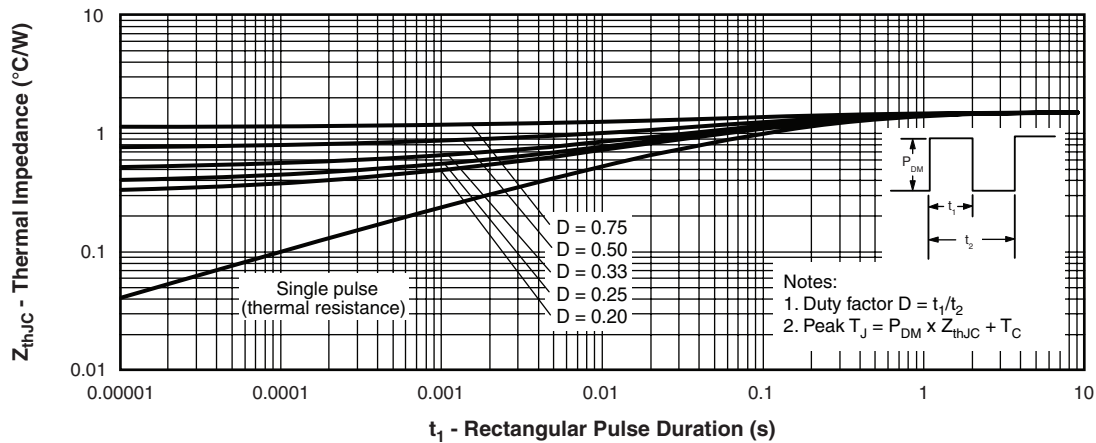


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics

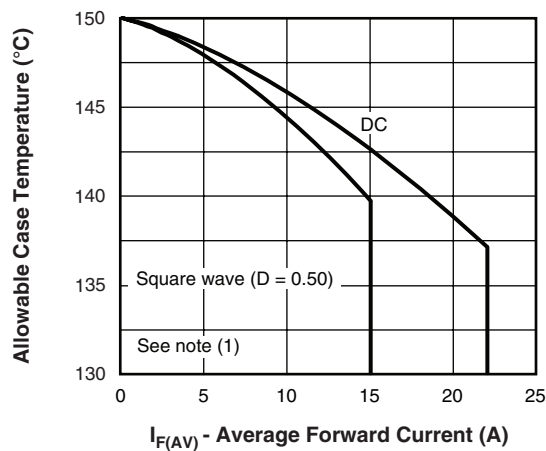


Fig. 5 - Maximum Allowable Case Temperature vs. Average Forward Current

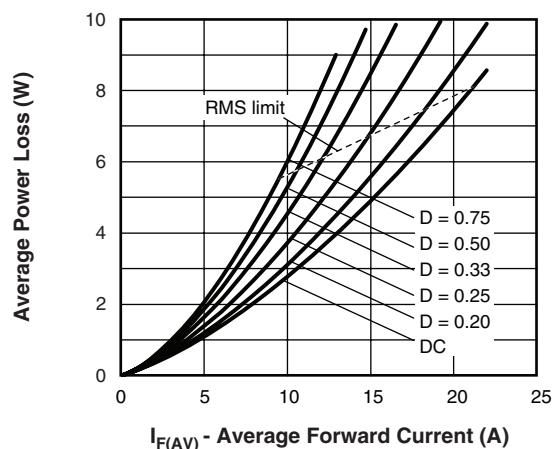


Fig. 6 - Forward Power Loss Characteristics

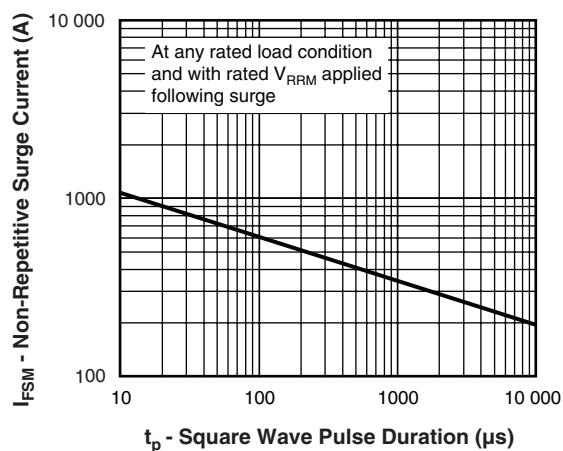


Fig. 7 - Maximum Non-Repetitive Surge Current (Per Leg)

Note

- (1) Formula used: $T_C = T_J - P_d \times R_{thJC}$;
 P_d = Forward power loss = $I_{F(AV)} \times V_{FM}$ at $(I_{F(AV)}/D)$ (see fig. 6)

ORDERING INFORMATION TABLE

Device code	STPS	30	L	30	CT	PbF
	①	②	③	④	⑤	⑥

- | | |
|---|--|
| 1 | - Schottky STPS series |
| 2 | - Current rating (30 = 30 A) |
| 3 | - L = Low voltage drop |
| 4 | - Voltage rating (30 = 30 V) |
| 5 | - CT = Essential part number |
| 6 | - <ul style="list-style-type: none"> • None = Standard production • PbF = Lead (Pb)-free |

LINKS TO RELATED DOCUMENTS	
Dimensions	http://www.vishay.com/doc?95222
Part marking information	http://www.vishay.com/doc?95225
SPICE model	http://www.vishay.com/doc?95287

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