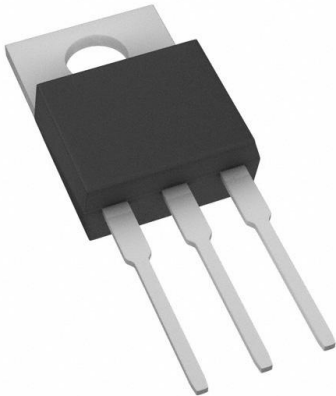


10CTQ150 Datasheet

www.digi-electronics.com



https://www.DiGi-Electronics.com

DiGi Electronics Part Number	10CTQ150-DG
Manufacturer	Vishay General Semiconductor - Diodes Division
Manufacturer Product Number	10CTQ150
Description	DIODE ARR SCHOTT 150V 5A TO220-3
Detailed Description	Diode Array 1 Pair Common Cathode 150 V 5A Through Hole TO-220-3

This model 10CTQ150 is available at DiGi Electronics.

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Purchase and inquiry

Manufacturer Product Number:

10CTQ150

Series:

-

Diode Configuration:

1 Pair Common Cathode

Voltage - DC Reverse (Vr) (Max):

150 V

Voltage - Forward (Vf) (Max) @ If:

930 mV @ 5 A

Current - Reverse Leakage @ Vr:

50 μ A @ 150 V

Mounting Type:

Through Hole

Supplier Device Package:

TO-220-3

Manufacturer:

Vishay General Semiconductor - Diodes Division

Product Status:

Obsolete

Technology:

Schottky

Current - Average Rectified (Io) (per Diode):

5A

Speed:

Fast Recovery \leq 500ns, $>$ 200mA (Io)

Operating Temperature - Junction:

-55°C ~ 175°C

Package / Case:

TO-220-3

Base Product Number:

10CTQ

Environmental & Export classification

RoHS Status:

RoHS non-compliant

REACH Status:

REACH Unaffected

HTSUS:

8541.10.0080

Moisture Sensitivity Level (MSL):

1 (Unlimited)

ECCN:

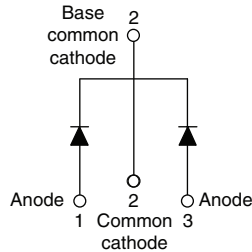
EAR99



Schottky Rectifier, 2 x 5 A



TO-220AB



FEATURES

- 175 °C T_J operation
- Center tap configuration
- 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

This center tap Schottky rectifier 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 5 A
V_R	150 V

MAJOR RATINGS AND CHARACTERISTICS

SYMBOL	CHARACTERISTICS	VALUES	UNITS
$I_{F(AV)}$	Rectangular waveform	10	A
V_{RRM}		150	V
I_{FSM}	$t_p = 5 \mu s$ sine	620	A
V_F	5 Apk, $T_J = 125 \text{ }^\circ\text{C}$ (per leg)	0.73	V
T_J	Range	- 55 to 175	$^\circ\text{C}$

VOLTAGE RATINGS

PARAMETER	SYMBOL	10CTQ150	UNITS
Maximum DC reverse voltage	V_R	150	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 $T_C = 155 \text{ }^\circ\text{C}$, rectangular waveform	5	A
			per leg	
Maximum peak one cycle non-repetitive surge current per leg See fig. 7	I_{FSM}	5 μs sine or 3 μs rect. pulse	620	A
		10 ms sine or 6 ms rect. pulse		
Non-repetitive avalanche energy per leg	E_{AS}	$T_J = 25 \text{ }^\circ\text{C}$, $I_{AS} = 0.30 \text{ A}$, $L = 150 \text{ mH}$	6.75	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	0.30	A

10CTQ150

Vishay High Power Products Schottky Rectifier, 2 x 5 A



ELECTRICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum forward voltage drop per leg See fig. 1	$V_{FM}^{(1)}$	5 A	$T_J = 25\text{ }^\circ\text{C}$	0.93	V
		10 A		1.10	
		5 A	$T_J = 125\text{ }^\circ\text{C}$	0.73	
		10 A		0.86	
Maximum reverse leakage current per leg See fig. 2	$I_{RM}^{(1)}$	$T_J = 25\text{ }^\circ\text{C}$	$V_R = \text{Rated } V_R$	0.05	mA
		$T_J = 125\text{ }^\circ\text{C}$		7	
Threshold voltage	$V_{F(TO)}$	$T_J = T_J \text{ maximum}$		0.468	V
Forward slope resistance	r_t			28	$\text{m}\Omega$
Maximum junction capacitance per leg	C_T	$V_R = 5\text{ }V_{DC}$ (test signal range 100 kHz to 1 MHz) $25\text{ }^\circ\text{C}$		200	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	$V/\mu\text{s}$

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	$^\circ\text{C}$
Maximum thermal resistance, junction to case per leg	R_{thJC}	DC operation		3.50	$^\circ\text{C/W}$
Maximum thermal resistance, junction to case per package				1.75	
Typical thermal resistance, case to heatsink (only for TO-220)	R_{thCS}	Mounting surface, smooth and greased		0.50	
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		10CTQ150	

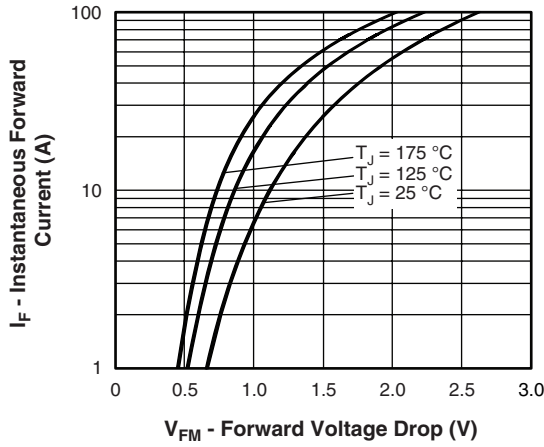


Fig. 1 - Maximum Forward Voltage Drop Characteristics (Per Leg)

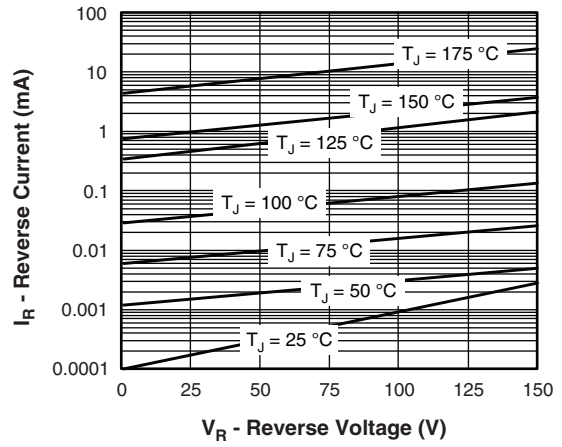


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage (Per Leg)

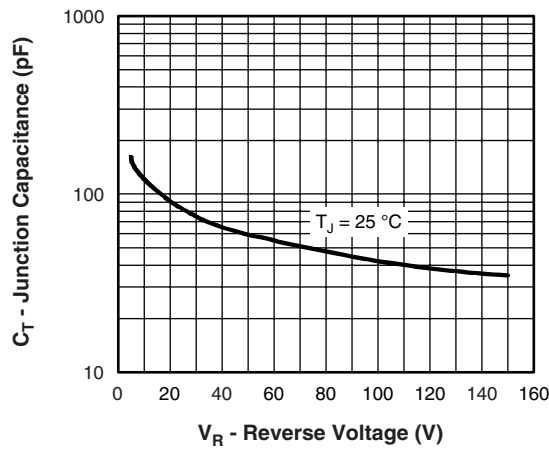


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage (Per Leg)

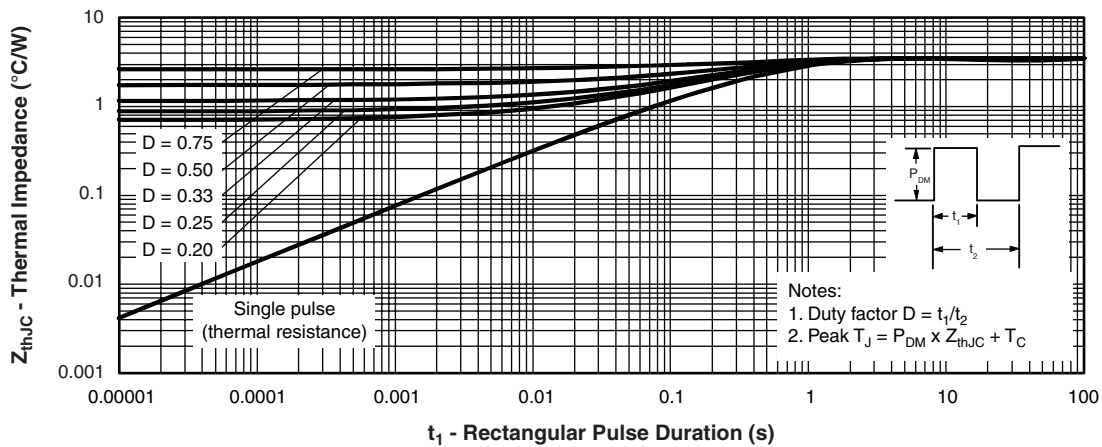


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics (Per Leg)

10CTQ150

Vishay High Power Products Schottky Rectifier, 2 x 5 A

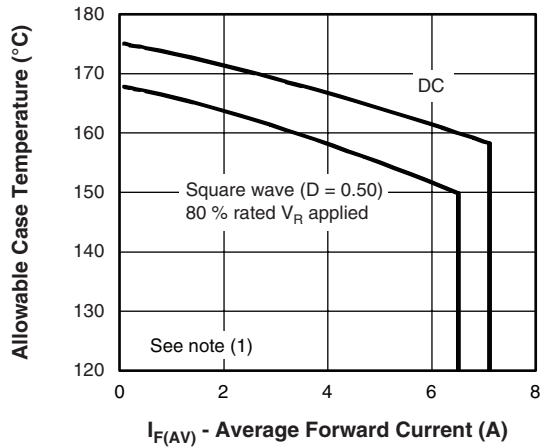


Fig. 5 - Maximum Allowable Case Temperature vs. Average Forward Current (Per Leg)

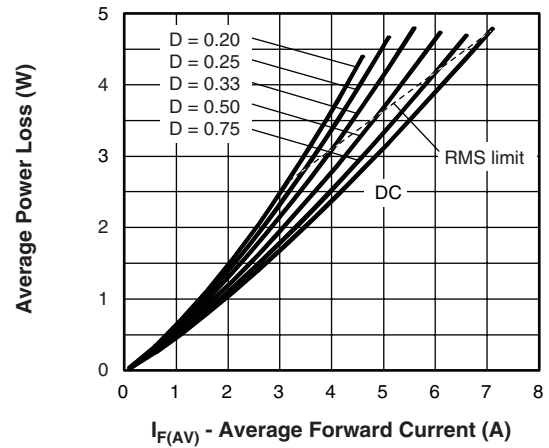


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

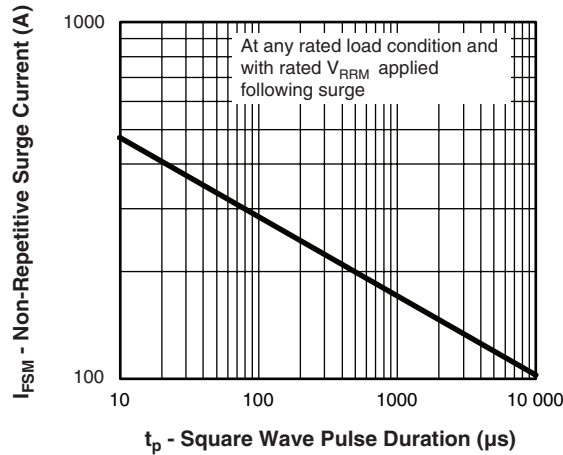


Fig. 7 - Maximum Non-Repetitive Surge Current (Per Leg)

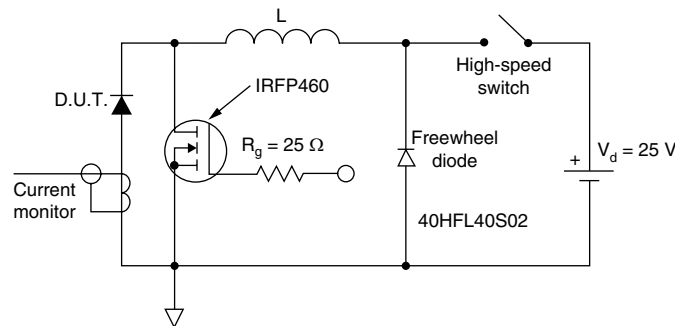


Fig. 8 - Unclamped Inductive Test Circuit

Note

- (1) Formula used: $T_C = T_J - (P_d + P_{d_{REV}}) \times R_{thJC}$;
 $P_d = \text{Forward power loss} = I_{F(AV)} \times V_{FM} \text{ at } (I_{F(AV)}/D)$ (see fig. 6);
 $P_{d_{REV}} = \text{Inverse power loss} = V_{R1} \times I_R (1 - D)$; I_R at $V_{R1} = 10 \text{ V}$

**10CTQ150**

Schottky Rectifier, 2 x 5 A Vishay High Power Products

ORDERING INFORMATION TABLE

Device code	10	C	T	Q	150	-
	①	②	③	④	⑤	⑥

- | | | |
|----------|---|----------------------------------------------------------------------------------------------------------------|
| 1 | - | Current rating (10 = 10 A) |
| 2 | - | Circuit configuration
C = Common cathode |
| 3 | - | Package
T = TO-220 |
| 4 | - | Schottky "Q" series |
| 5 | - | Voltage rating (150 = 150 V) |
| 6 | - | <ul style="list-style-type: none"> • None = Standard production • PbF = Lead (Pb)-free |

Tube standard pack quantity: 50 pieces

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



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