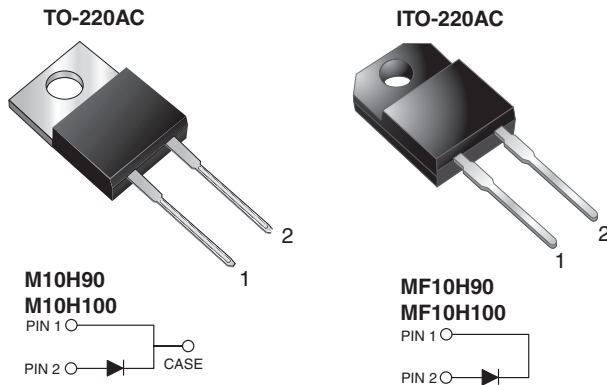


## High Voltage Schottky Rectifier

High Barrier Technology for Improved High Temperature Performance



### FEATURES

- Power pack
- Guardring for overvoltage protection
- Low power loss, high efficiency
- Low forward voltage drop
- Low leakage current
- High forward surge capability
- High frequency operation
- Solder bath temperature 275 °C maximum, 10 s, per JESD 22-B106 (for TO-220AC and ITO-220AC package)
- AEC-Q101 qualified available
  - Automotive ordering code: base P/NHE3\_A
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

### TYPICAL APPLICATIONS

For use in high frequency rectifier of switching mode power supplies, freewheeling diodes, DC/DC converters, or polarity protection application.

### MECHANICAL DATA

**Case:** TO-220AC, ITO-220AC

Molding compound meets UL 94 V-0 flammability rating  
Base P/NHE3\_X - RoHS-compliant, AEC-Q101 qualified ("X" denotes revision code e.g. A, B, ....)

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

E3 suffix meets JESD 201 class 1A whisker test, HE3 suffix meets JESD 201 class 2 whisker test

**Polarity:** As marked

**Mounting Torque:** 10 in-lbs maximum

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	10 A
$V_{RRM}$	90 V to 100 V
$I_{FSM}$	250 A
$V_F$	0.64 V
$I_R$	4.5 $\mu$ A
$T_J$ max.	175 °C
Package	TO-220AC, ITO-220AC
Diode variations	Single

MAXIMUM RATINGS ( $T_C = 25$ °C unless otherwise noted)				
PARAMETER	SYMBOL	M10H90	M10H100	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	90	100	V
Working peak reverse voltage	$V_{RWM}$	90	100	
Maximum DC blocking voltage	$V_{DC}$	90	100	
Maximum average forward rectified current	$I_{F(AV)}$	10		A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	250		
Peak repetitive reverse current at $t_p = 2.0$ $\mu$ s, 1 kHz	$I_{RRM}$	0.5		
Voltage rate of change (rated $V_R$ )	dV/dt	10 000		V/ $\mu$ s
Operating junction and storage temperature range	$T_J, T_{STG}$	-65 to +175		°C
Isolation voltage (ITO-220AC only) from terminal to heatsink $t = 1$ min	$V_{AC}$	1500		V



ELECTRICAL CHARACTERISTICS (T <sub>C</sub> = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUE	UNIT
Maximum instantaneous forward voltage	V <sub>F</sub> <sup>(1)</sup>	I <sub>F</sub> = 10 A	T <sub>C</sub> = 25 °C	0.77	V
		I <sub>F</sub> = 10 A	T <sub>C</sub> = 125 °C	0.64	
		I <sub>F</sub> = 20 A	T <sub>C</sub> = 25 °C	0.88	
		I <sub>F</sub> = 20 A	T <sub>C</sub> = 125 °C	0.73	
Maximum reverse current	I <sub>R</sub> <sup>(2)</sup>	Rated V <sub>R</sub>	T <sub>J</sub> = 25 °C	4.5	μA
			T <sub>J</sub> = 125 °C	6.0	mA

**Notes**

- (1) Pulse test: 300 μs pulse width, 1 % duty cycle
- (2) Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T <sub>C</sub> = 25 °C unless otherwise noted)				
PARAMETER	SYMBOL	M	MF	UNIT
Typical thermal resistance	R <sub>θJC</sub>	2.7	5.8	°C/W

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AC	M10H100HE3_A/P <sup>(1)</sup>	1.80	P	50/tube	Tube
ITO-220AC	MF10H100HE3_A/P <sup>(1)</sup>	1.94	P	50/tube	Tube

**Note**

- (1) AEC-Q101 qualified

**RATINGS AND CHARACTERISTICS CURVES (T<sub>C</sub> = 25 °C unless otherwise noted)**

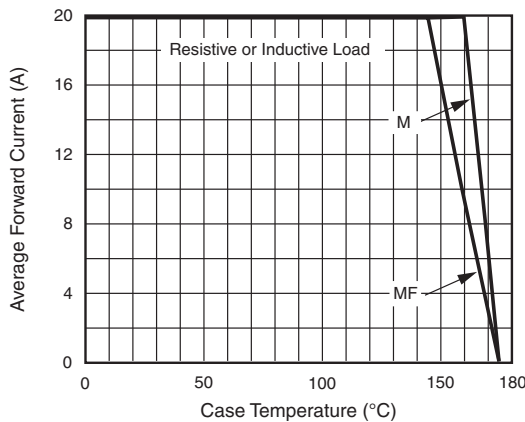


Fig. 1 - Forward Current Derating Curve

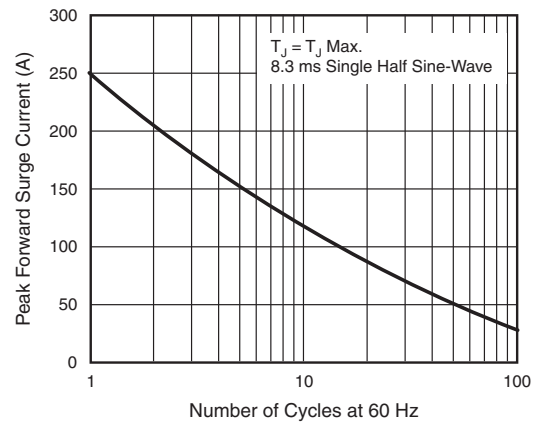


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

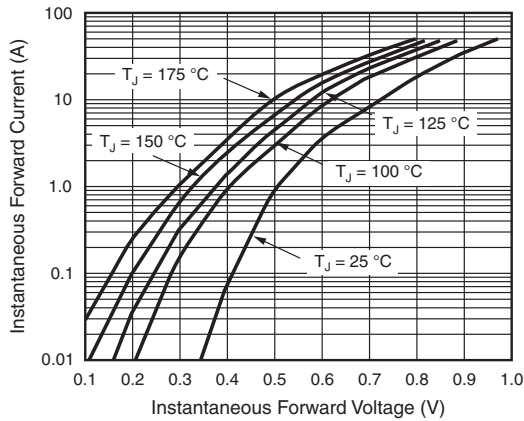


Fig. 3 - Typical Instantaneous Forward Characteristics

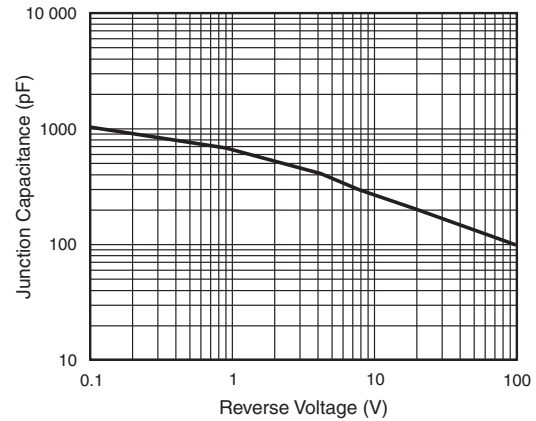


Fig. 5 - Typical Junction Capacitance

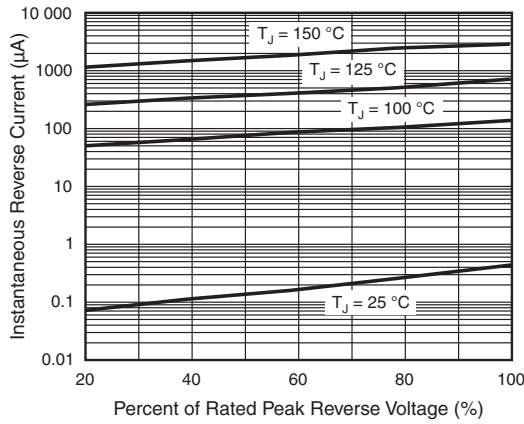


Fig. 4 - Typical Reverse Characteristics

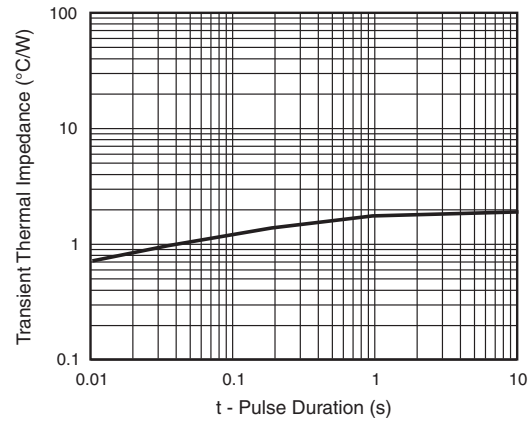
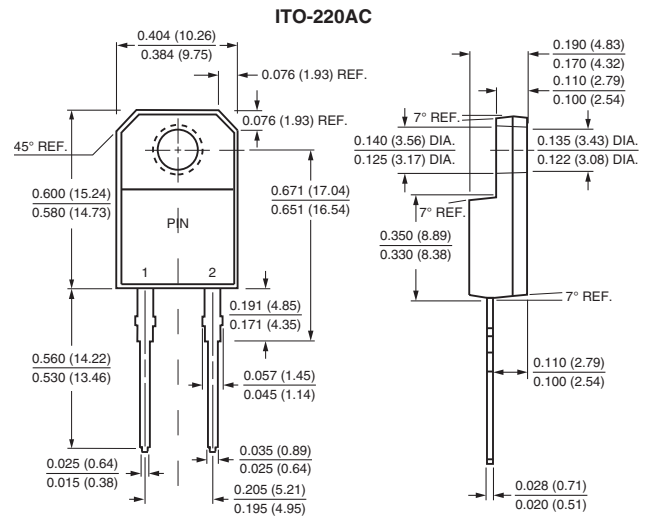
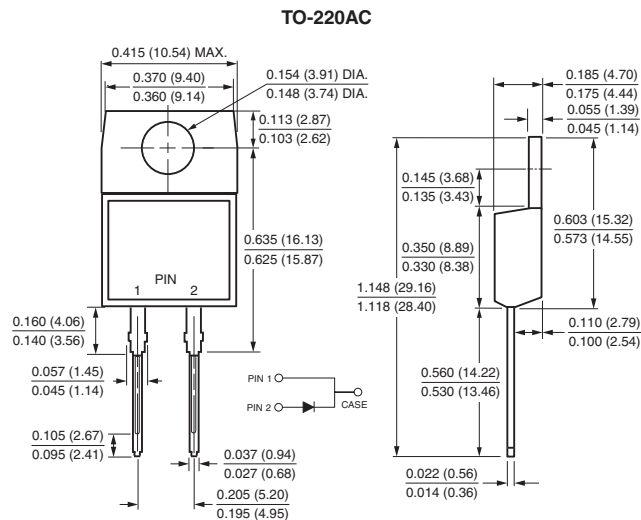


Fig. 6 - Typical Transient Thermal Impedance

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)





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### Наши контакты:

**Телефон:** +7 812 627 14 35

**Электронная почта:** [sales@st-electron.ru](mailto:sales@st-electron.ru)

**Адрес:** 198099, Санкт-Петербург,  
Промышленная ул, дом № 19, литера Н,  
помещение 100-Н Офис 331