

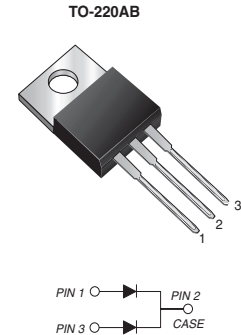


## Dual High-Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low  $V_F = 0.375\text{ V}$  at  $I_F = 5\text{ A}$

### Major Ratings and Characteristics

$I_{F(AV)}$	2 x 20 A
$V_{RRM}$	100 V
$I_{FSM}$	250 A
$V_F$ at $I_F = 20\text{ A}$	0.61 V
$T_J$ max.	150 °C



### Features

- Trench MOS Schottky Technology
- Low forward voltage drop, low power losses
- High efficiency operation
- Low thermal resistance
- Solder Dip 260 °C, 40 seconds



### Mechanical Data

**Case:** TO-220AB

Epoxy meets UL 94V-0 flammability rating

**Terminals:** Matte tin plated leads, solderable per J-STD-002B and JESD22-B102D

E3 suffix for commercial grade

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

### Typical Applications

For use in high frequency inverters, switching power supplies, freewheeling diodes, Oring diode, dc-to-dc converters and reverse battery protection.

### Maximum Ratings

$T_A = 25\text{ °C}$  unless otherwise specified

Parameter	Symbol	VTS40100CT	Unit
Maximum repetitive peak reverse voltage	$V_{RRM}$	100	V
RMS reverse voltage	$V_{RMS}$	70	V
DC blocking voltage	$V_R$	100	V
Maximum average forward rectified current (see Fig. 1)	$I_{F(AV)}$	40 20	A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	250	A
Peak repetitive reverse current per leg at $t_p = 2\text{ }\mu\text{s}$ , 1 kHz	$I_{RRM}$	1.0	A
Voltage rate of change (rated $V_R$ )	dv/dt	10000	V
Operating junction and storage temperature range	$T_J, T_{STG}$	- 20 to + 150	°C

## Electrical Characteristics

$T_A = 25\text{ }^\circ\text{C}$  unless otherwise specified

Parameter	Test condition		Symbol	Typ.	Max.	Unit
Breakdown voltage	at $I_R = 1.0\text{ mA}$	$T_J = 25\text{ }^\circ\text{C}$	$V_{(BR)}$	100 (minimum)	-	V
Instantaneous forward voltage <sup>(1)</sup> per leg	at $I_F = 5\text{ A}$ $I_F = 10\text{ A}$ $I_F = 20\text{ A}$	$T_J = 25\text{ }^\circ\text{C}$	$V_F$	0.463	-	V
				0.535	-	
				0.664	0.73	
	at $I_F = 5\text{ A}$ $I_F = 10\text{ A}$ $I_F = 20\text{ A}$	$T_J = 125\text{ }^\circ\text{C}$		0.375	-	
0.445			-			
0.605			0.67			
Reverse current at rated $V_{RM}$ <sup>(1)</sup> per leg	at $V_R = 70\text{ V}$	$T_J = 25\text{ }^\circ\text{C}$	$I_R$	13.7	500	$\mu\text{A}$
		$T_J = 125\text{ }^\circ\text{C}$		8.4	15	mA
	at $V_R = 100\text{ V}$	$T_J = 25\text{ }^\circ\text{C}$		69.6	1000	$\mu\text{A}$
		$T_J = 125\text{ }^\circ\text{C}$		22.5	45	mA

Notes:

(1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle

## Thermal Characteristics

$T_A = 25\text{ }^\circ\text{C}$  unless otherwise specified

Parameter	Symbol	VTS40100CT	Unit
Typical thermal resistance per leg	$R_{\theta JC}$	2.0	$^\circ\text{C/W}$

## Ratings and Characteristics Curves

( $T_A = 25\text{ }^\circ\text{C}$  unless otherwise noted)

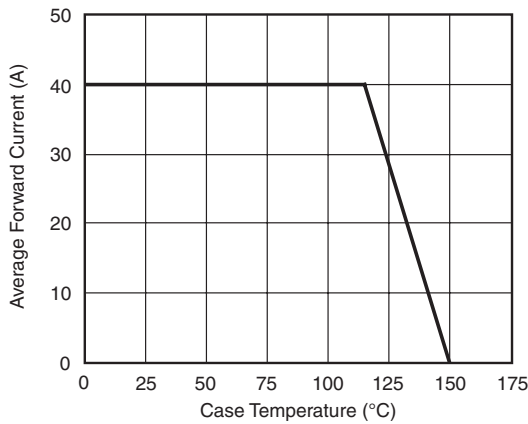


Figure 1. Forward Current Derating Curve

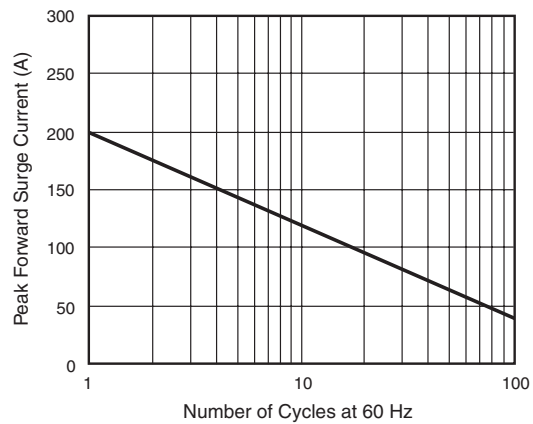


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

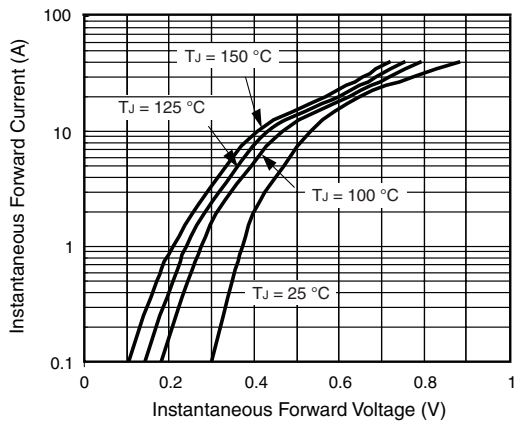


Figure 3. Typical Instantaneous Forward Characteristics Per Leg

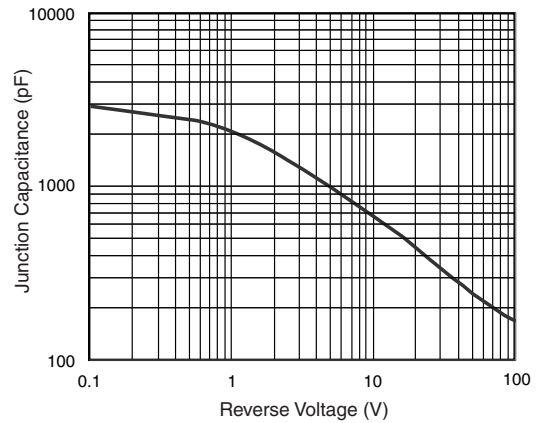


Figure 5. Typical Junction Capacitance

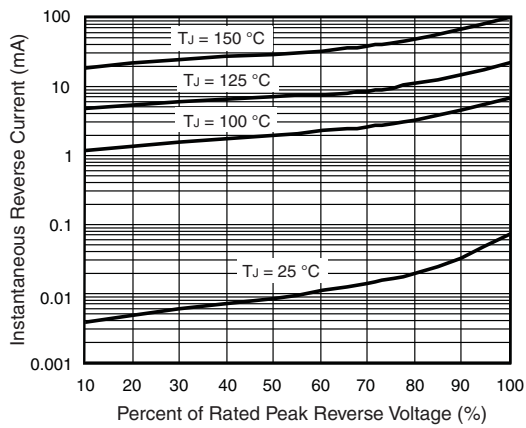


Figure 4. Typical Reverse Characteristics

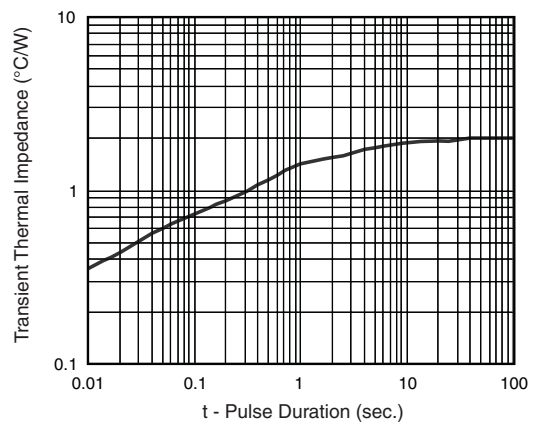
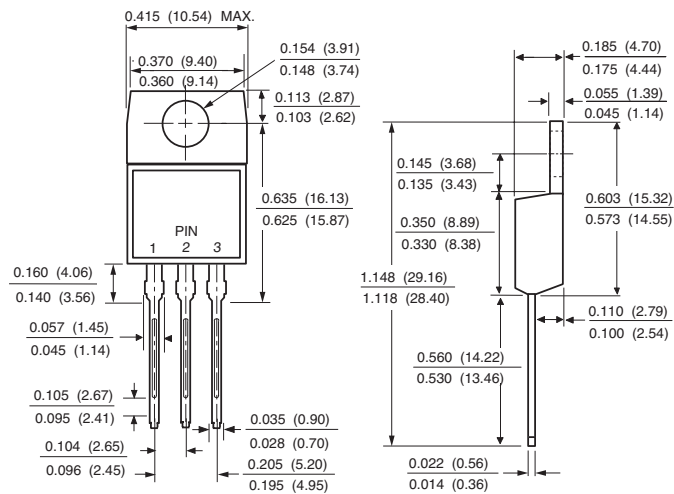


Figure 6. Typical Transient Thermal Impedance

## Package outline dimensions in inches (millimeters)

### TO-220AB





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