

20A, 45V - 60V Low V_F Trench Schottky Rectifier

FEATURES

- Patented Trench Schottky technology
- Excellent high temperature stability
- Low forward voltage
- Low power loss/ High efficiency
- High forward surge capability
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

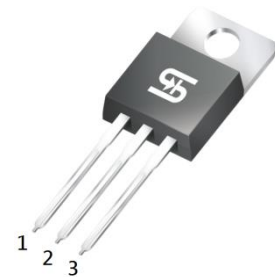
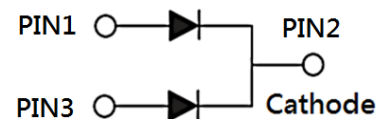
APPLICATIONS

- Switching mode power supply (SMPS)
- Adapters
- DC to DC converters

MECHANICAL DATA

- Case: TO-220AB
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Mounting torque: 0.56 N·m maximum
- Meet JESD 201 class 2 whisker test
- Polarity: As marked
- Weight: 1.88g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
I_F	20	A
V_{RRM}	45 - 60	V
I_{FSM}	120	A
T_{JMAX}	150	°C
Package	TO-220AB	
Configuration	Dual dies	


TO-220AB


ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)				
PARAMETER	SYMBOL	TST20U45C	TST20U60C	UNIT
Marking code on the device		TST20U45C	TST20U60C	
Repetitive peak reverse voltage	V_{RRM}	45	60	V
Reverse voltage, total rms value	$V_{R(RMS)}$	31	42	V
Forward current	I_F	20		A
Surge peak forward current, 8.3ms single half sine wave superimposed on rated load	I_{FSM}	120		A
Critical rate of rise of off-state voltage	dv/dt	10,000		V/ μs
Junction temperature	T_J	-55 to +150		°C
Storage temperature	T_{STG}	-55 to +150		°C

THERMAL PERFORMANCE				
PARAMETER		SYMBOL	TYP	UNIT
Junction-to-case thermal resistance	TST20U45C	$R_{\theta JC}$	2	°C/W
	TST20U60C		2.4	°C/W

ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted)						
PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage per diode ⁽¹⁾	TST20U45C	$I_F = 10\text{A}, T_J = 25^\circ\text{C}$	V_F	-	0.53	V
	TST20U60C			-	0.54	V
	TST20U45C	$I_F = 20\text{A}, T_J = 25^\circ\text{C}$		-	0.60	V
	TST20U60C			-	0.63	V
	TST20U45C	$I_F = 10\text{A}, T_J = 125^\circ\text{C}$		0.39	0.44	V
	TST20U60C			0.43	0.48	V
	TST20U45C	$I_F = 20\text{A}, T_J = 125^\circ\text{C}$		-	0.55	V
	TST20U60C			-	0.61	V
Reverse current @ rated V_R per diode ⁽²⁾		$T_J = 25^\circ\text{C}$	I_R	-	300	μA
		$T_J = 125^\circ\text{C}$		-	60	mA

Notes:

1. Pulse test with $PW = 0.3\text{ms}$
2. Pulse test with $PW = 30\text{ms}$

ORDERING INFORMATION		
ORDERING CODE⁽¹⁾	PACKAGE	PACKING
TST20UxC	TO-220AB	50 / Tube

Notes:

1. "x" defines voltage from 45V(TST20U45C) to 60V(TST20U60C)

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

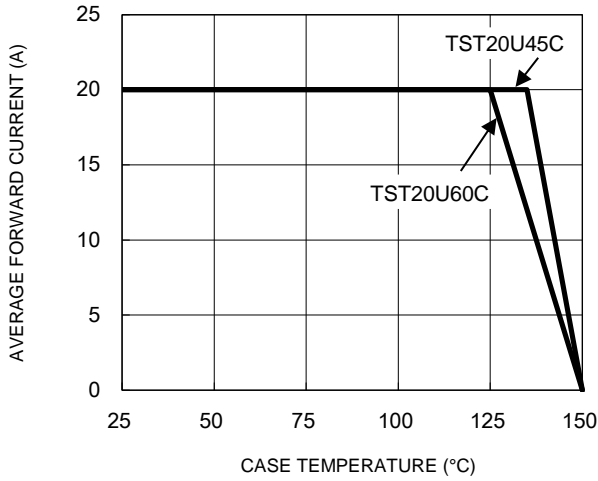


Fig.2 Typical Junction Capacitance

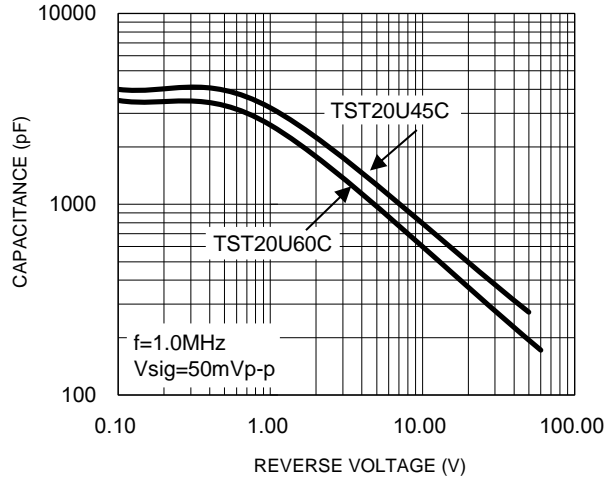


Fig.3 Typical Reverse Characteristics

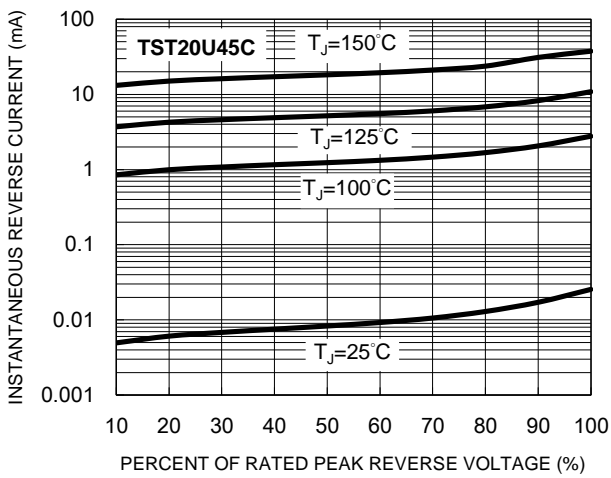


Fig.4 Typical Forward Characteristics

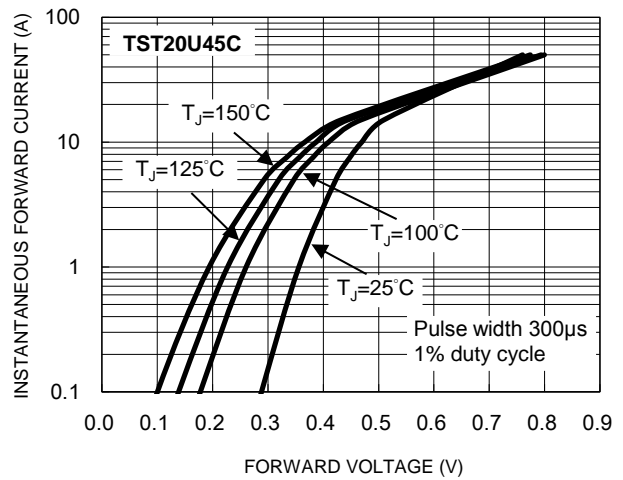


Fig.5 Typical Reverse Characteristics

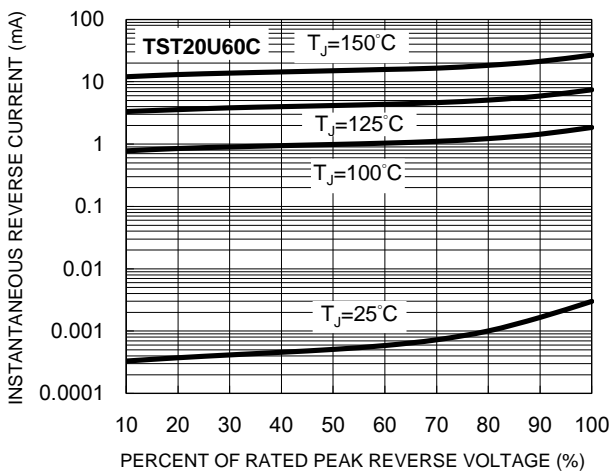
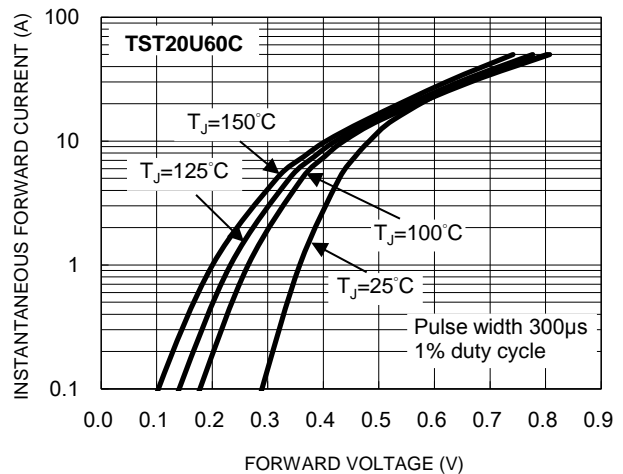
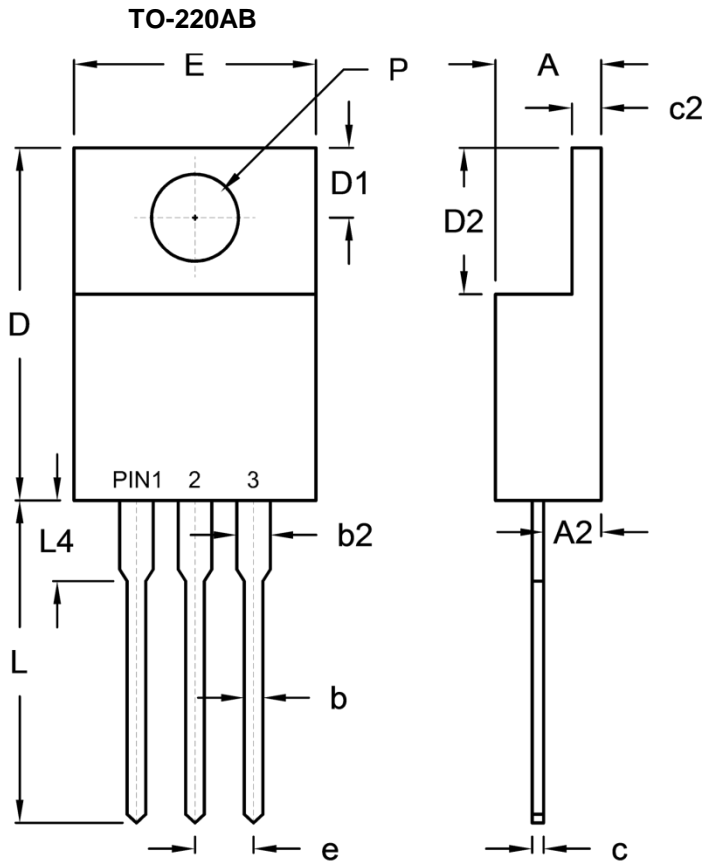


Fig.6 Typical Forward Characteristics



PACKAGE OUTLINE DIMENSIONS



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	4.42	4.76	0.174	0.187
A2	2.20	2.80	0.087	0.110
b	0.68	0.94	0.027	0.037
b2	1.14	1.77	0.045	0.070
c	0.35	0.64	0.014	0.025
c2	1.14	1.40	0.045	0.055
D	14.60	16.00	0.575	0.630
D1	2.62	3.44	0.103	0.135
D2	5.84	6.86	0.230	0.270
E	-	10.50	-	0.413
e	2.41	2.67	0.095	0.105
L	13.19	14.79	0.519	0.582
L4	2.80	4.20	0.110	0.165
P	3.54	4.00	0.139	0.157

MARKING DIAGRAM



- P/N = Marking Code
- G = Green Compound
- YWW = Date Code
- F = Factory Code