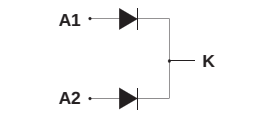
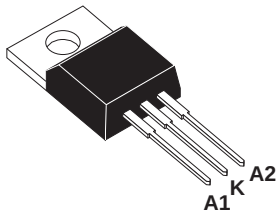
STPS16L40CT

LOW DROP POWER SCHOTTKY RECTIFIER

MAIN PRODUCTS CHARACTERISTICS

$I_{F(AV)}$	2 x 8 A
V_{RRM}	40 V
Tj (max)	150 °C
V_F (max)	0.45 V





TO-220AB

FEATURES AND BENEFITS

- LOW FORWARD VOLTAGE DROP FOR LESS POWER DISSIPATION
- NEGLIGIBLE SWITCHING LOSSES ALLOWING HIGH FREQUENCY OPERATION
- AVALANCHE RATED

DESCRIPTION

Dual center tap Schottky barrier rectifier designed for high frequency Switched Mode Power Supplies and high frequency DC to DC converters.

Packaged in TO-220AB this device is intended for use in low voltage, high frequency converters, free-wheeling and polarity protection applications.

ABSOLUTE RATINGS (limiting values, per diode)

Symbol	Parameter			Value	Unit
V_{RRM}	Repetitive peak reverse voltage			40	V
$I_{F(RMS)}$	RMS forward current			30	A
$I_{F(AV)}$	Average forward current	Tc = 140°C δ = 0.5	Per diode	8	A
			Per device	16	A
I_{FSM}	Surge non repetitive forward current	tp = 10 ms sinusoidal		180	A
I_{RRM}	Repetitive peak reverse current	tp=2 µs square F=1kHz		1	A
I_{RSM}	Non repetitive peak reverse current	tp = 100 µs square		2	A
T_{stg}	Storage temperature range			- 65 to + 150	°C
Tj	Maximum operating junction temperature *			150	°C
dV/dt	Critical rate of rise of reverse voltage			10000	V/µs

* : $\frac{dPtot}{dTj} < \frac{1}{Rth(j-a)}$ thermal runaway condition for a diode on its own heatsink

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	Junction to case	Per diode Total	2.2 1.3	°C/W
$R_{th(c)}$		Coupling	0.3	

When the diodes 1 and 2 are used simultaneously :
Δ Tj(diode 1) = P(diode1) x $R_{th(j-c)}$(Per diode) + P(diode 2) x $R_{th(c)}$

STATIC ELECTRICAL CHARACTERISTICS (per diode)

Symbol	Parameter	Tests Conditions		Min.	Typ.	Max.	Unit
I_R *	Reverse leakage current	Tj = 25°C	$V_R = V_{RRM}$			0.7	mA
		Tj = 100°C			15	35	mA
V_F *	Forward voltage drop	Tj = 25°C	I_F = 8 A			0.5	V
		Tj = 125°C	I_F = 8 A		0.39	0.45	
		Tj = 25°C	I_F = 16 A			0.63	
		Tj = 125°C	I_F = 16 A		0.55	0.64	

Pulse test : * tp = 380 µs, δ < 2%

To evaluate the conduction losses use the following equation :
$P = 0.26 \times I_{F(AV)} + 0.024\ I_{F^2(RMS)}$

Fig. 1: Average forward power dissipation versus average forward current (per diode).

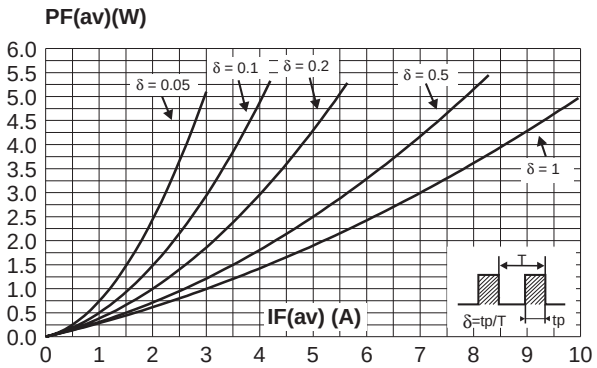


Fig. 2: Average current versus ambient temperature (δ = 0.5) (per diode).

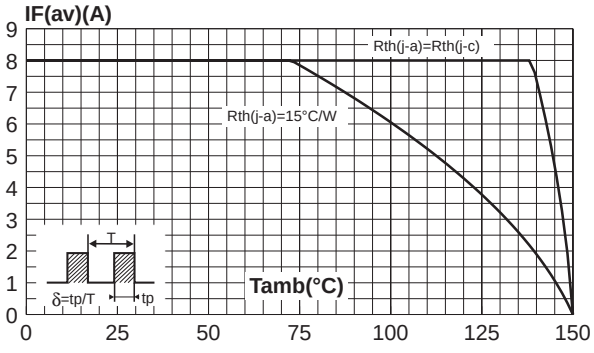


Fig. 3: Non repetitive surge peak forward current versus overload duration (maximum values) (per diode).

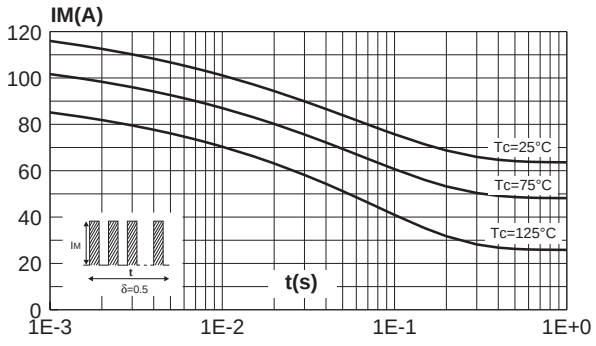


Fig. 4: Relative variation of thermal impedance junction to case versus pulse duration .

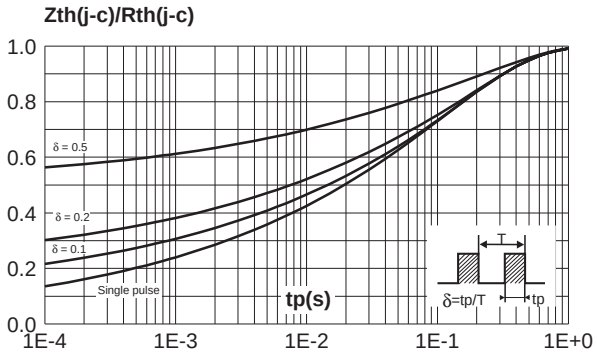


Fig. 5: Reverse leakage current versus reverse voltage applied (typical values) (per diode).

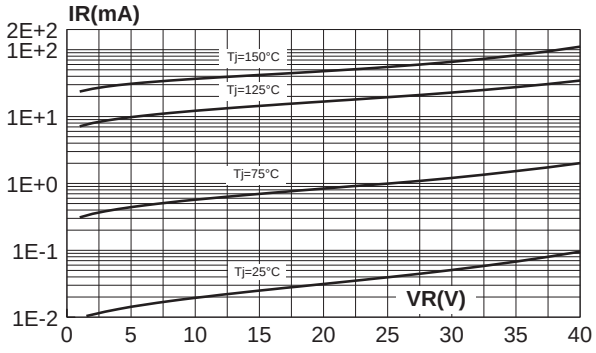


Fig. 6: Junction capacitance versus reverse voltage applied (typical values) (per diode).

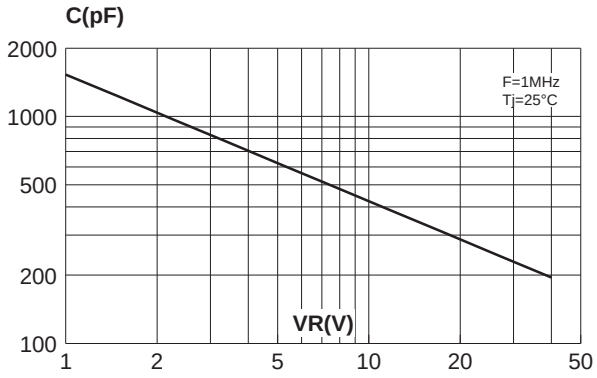
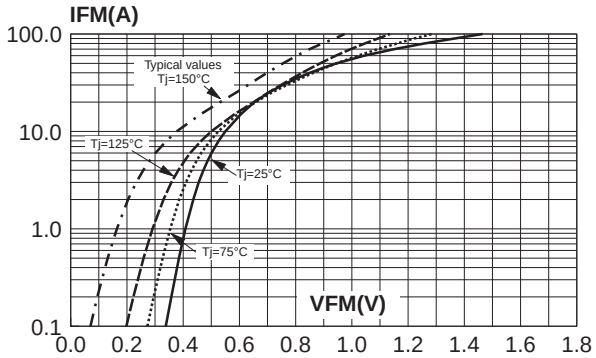
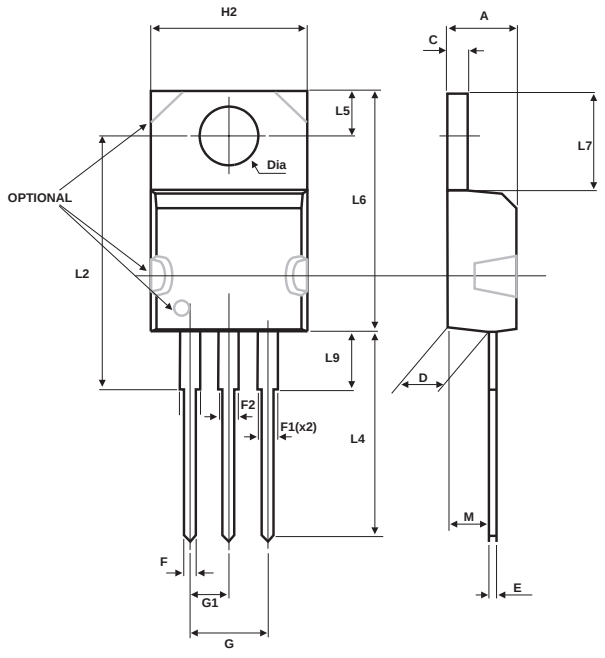


Fig. 7: Forward voltage drop versus forward current (maximum values) (per diode).



PACKAGE MECHANICAL DATA

TO-220AB



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.30	4.60	0.169	0.181
C	1.22	1.32	0.048	0.052
D	2.40	2.72	0.094	0.107
E	0.33	0.70	0.013	0.028
F	0.61	0.93	0.024	0.037
F1	1.14	1.70	0.045	0.067
F2	1.14	1.70	0.045	0.067
G	4.95	5.15	0.195	0.202
G1	2.40	2.70	0.094	0.106
H2	10.00	10.40	0.394	0.409
L2	16.00 Typ.		0.630 Typ.	
L4	13.00	14.00	0.512	0.551
L5	2.65	2.95	0.104	0.116
L6	14.80	15.75	0.583	0.620
L7	6.20	6.60	0.244	0.260
L9	3.40	3.94	0.134	0.155
M	2.60 Typ.		0.102 Typ.	
Dia.	3.75	3.89	0.148	0.153

Ordering type	Marking	Package	Weight	Base qty	Delivery mode
STPS16L40CT	STPS16L40CT	TO-220AB	2g	50	Tube

- Epoxy meets UL94,V0
- Cooling method : C
- Recommended torque value : 0.55 m.N
- Maximum torque value : 0.70 m.N