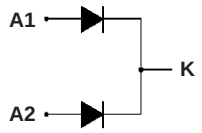
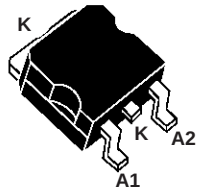
STPR1620CG
STPR1620CT

ULTRA-FAST RECOVERY RECTIFIER DIODES

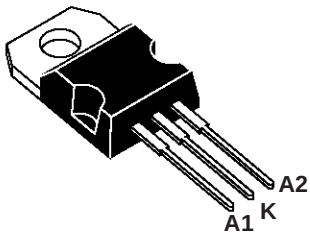
MAIN PRODUCTS CHARACTERISTICS

$I_{F(AV)}$	2 x 8 A
V_{RRM}	200 V
Tj (max)	150°C
V_F (max)	0.99 V
trr (max)	30 ns





D^2PAK
STPR1620CG



TO-220AB
STPR1620CT

FEATURES

- SUITED FOR SMPS
- LOW LOSSES
- LOW FORWARD AND REVERSE RECOVERY TIME
- HIGH SURGE CURRENT CAPABILITY

DESCRIPTION

Low cost dual center tap rectifier suited for Switched Mode Power Supplies and high frequency DC to DC converters.
Packaged in D^2PAK or TO-220AB, this device is intended for use in low voltage, high frequency inverters, free wheeling and polarity protection applications.

ABSOLUTE RATINGS (limiting values, per diode)

Symbol	Parameter			Value	Unit
V_{RRM}	Repetitive peak reverse voltage			200	V
$I_{F(RMS)}$	RMS forward current			20	A
$I_{F(AV)}$	Average forward current $\delta = 0.5$	Tc=120°C	Per diode Per device	8 16	A
I_{FSM}	Surge non repetitive forward current	tp=10ms sinusoidal		80	A
T_{stg}	Storage temperature range			- 65 to + 150	°C
Tj	Maximum operating junction temperature			150	°C

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th\ (j-c)}$	Junction to case	Per diode	3.0	°C/W
		Total	1.8	°C/W
$R_{th\ (c)}$		Coupling	0.6	°C/W

When the diodes 1 and 2 are used simultaneously :
Δ Tj(diode 1) = P(diode 1) x Rth(j-c) (Per diode) + P(diode 2) x Rth(c)

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Test conditions		Min.	Typ.	Max.	Unit
I_R *	T_j = 25°C	$V_R = V_{RRM}$			50	µA
	T_j = 100°C			0.2	0.6	mA
V_F **	T_j = 125°C	I_F = 8 A		0.8	0.99	V
	T_j = 125°C	I_F = 16 A		0.95	1.20	
	T_j = 25°C	I_F = 16 A			1.25	

Pulse test : * tp = 5 ms, δ < 2 %
** tp = 380 µs, δ < 2 %

To evaluate the conduction losses use the following equation :
$P = 0.78 \times I_{F(AV)} + 0.026 \times I_{F^2(RMS)}$

RECOVERY CHARACTERISTICS

Symbol	Test conditions			Min.	Typ.	Max.	Unit
trr	T_j = 25°C	I_F = 0.5A I_R = 1A	Irr = 0.25A			30	ns
tfr	T_j = 25°C	I_F = 3A $V_{FR} = 1.1 \times V_F$ max	dI_F/dt = 50 A/µs		20		ns
V_{FP}	T_j = 25°C	I_F = 3A	dI_F/dt = 50 A/µs		3		V

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

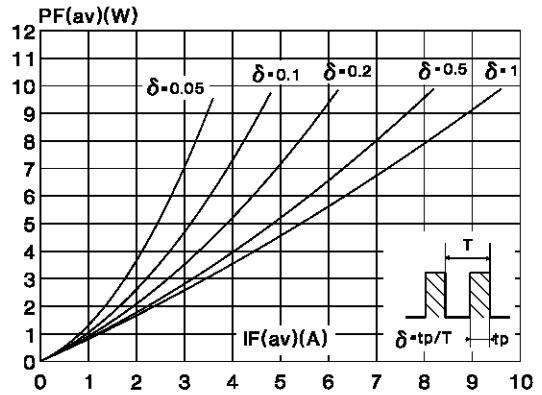


Fig. 2: Peak current versus form factor (per diode).

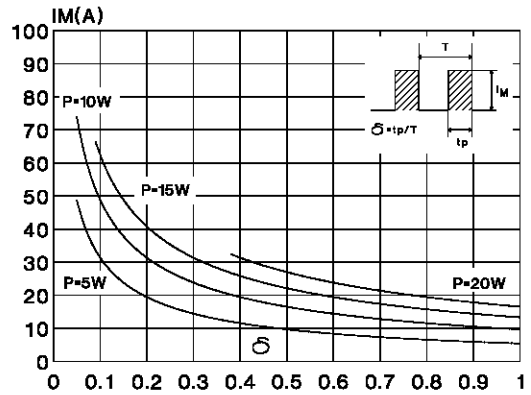


Fig. 3: Average current versus ambient temperature (δ : 0.5, per diode).

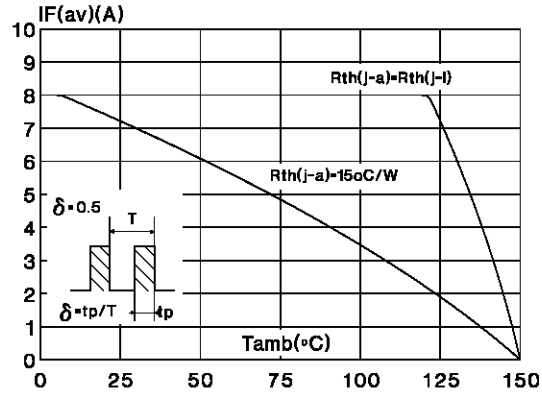


Fig. 4: Non repetitive surge peak forward current versus overload duration (maximum values, per diode).

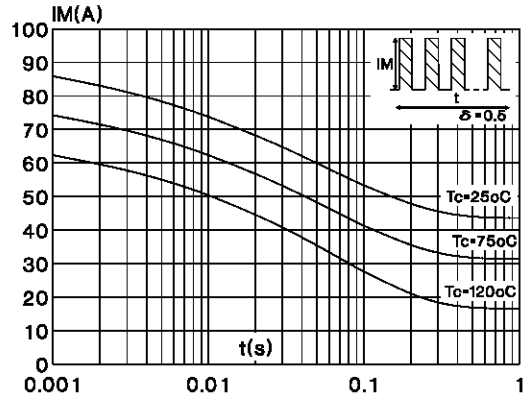


Fig. 5: Relative variation of thermal transient impedance junction to case versus pulse duration (per diode).

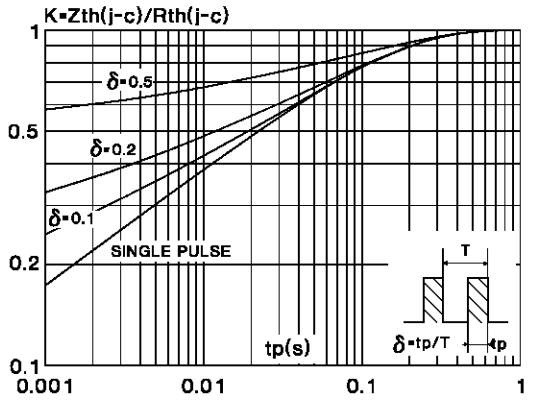
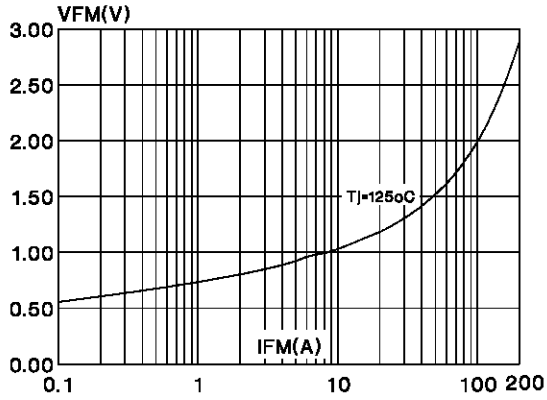
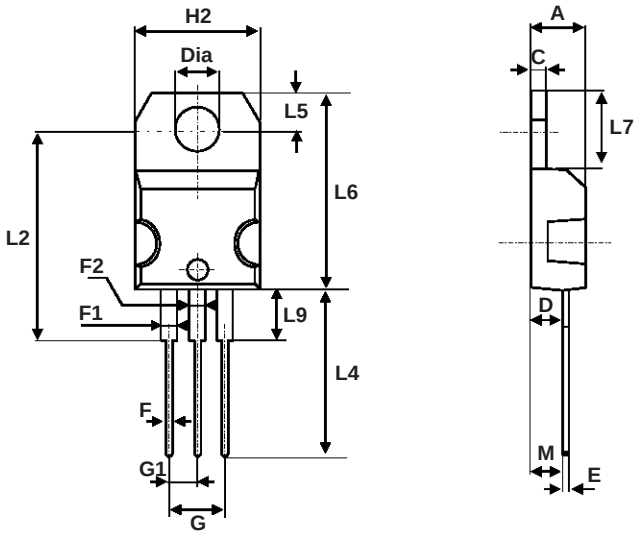


Fig. 6: Forward voltage drop versus forward current (maximum values, per diode).



PACKAGE MECHANICAL DATA

TO-220AB (JEDEC outline)



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.40	4.60	0.173	0.181
C	1.23	1.32	0.048	0.051
D	2.40	2.72	0.094	0.107
E	0.49	0.70	0.019	0.027
F	0.61	0.88	0.024	0.034
F1	1.14	1.70	0.044	0.066
F2	1.14	1.70	0.044	0.066
G	4.95	5.15	0.194	0.202
G1	2.40	2.70	0.094	0.106
H2	10	10.40	0.393	0.409
L2	16.4 typ.		0.645 typ.	
L4	13	14	0.511	0.551
L5	2.65	2.95	0.104	0.116
L6	15.25	15.75	0.600	0.620
L7	6.20	6.60	0.244	0.259
L9	3.50	3.93	0.137	0.154
M	2.6 typ.		0.102 typ.	
Diam.	3.75	3.85	0.147	0.151

Ordering type	Marking	Package	Weight	Base qty	Delivery mode
STPR1620CT	STPR1620CT	TO-220AB	2.23g	50	Tube
STPR1620CG	STPR1620CG	D^2PAK	1.48g	50	Tube
STPR1620CG-TR	STPR1620CG	D^2PAK	1.48g	1000	Tape & reel

- Cooling method : by conduction (C)
- Recommended torque value : 0.55N.m.
- Maximum torque value : 0.7N.m.
- Epoxy meets UL94,V0