

## HIGH EFFICIENCY FAST RECOVERY RECTIFIER DIODES

### MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	<b>2 x 4 A</b>
$V_{RRM}$	<b>200 V</b>
$t_{rr} (max)$	<b>35 ns</b>

### PRELIMINARY DATASHEET

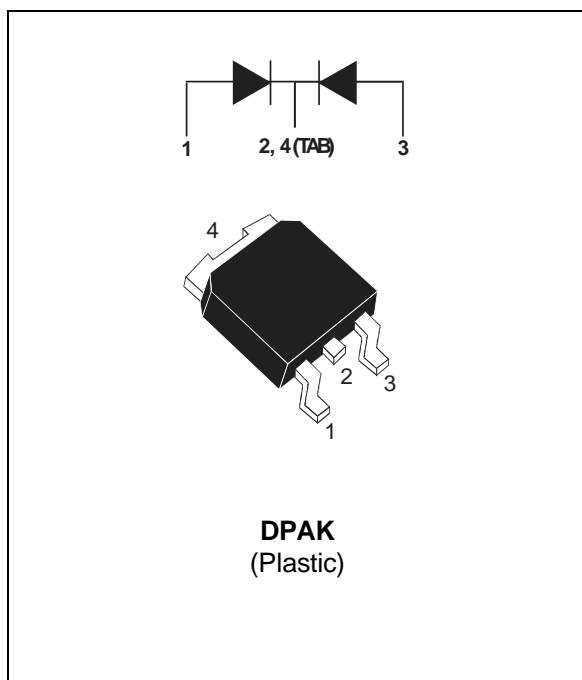
### FEATURES AND BENEFITS

- SUITED FOR SMPS AND DRIVES
- SURFACE MOUNT
- VERY LOW FORWARD LOSSES
- NEGLIGIBLE SWITCHING LOSSES
- HIGH SURGE CURRENT CAPABILITY
- SURFACE MOUNT DEVICE
- TAPE AND REEL OPTION : -TR

### DESCRIPTION

Dual rectifier suited for Switch Mode and high frequency converters.

Packaged in DPAK, this surface mount device is intended for use in low voltage, high frequency inverters, free wheeling and polarity protection applications.



### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter		Value	Unit
$V_{RRM}$	Repetitive Peak Reverse Voltage		200	V
$V_{RSM}$	Non Repetitive Surge Reverse Voltage		220	V
$I_{F(RMS)}$	RMS Forward Current	Per diode	10	A
$I_{F(AV)}$	Average Forward Current $T_{case} = 130^{\circ}C$ $\delta = 0.5$	Per diode Per device	5 10	A
$I_{FSM}$	Surge Non Repetitive Forward Current $t_p = 10$ ms Sinusoidal	Per diode	70	A
Tstg	Storage Temperature Range		- 40 to + 150	$^{\circ}C$
Tj	Max. Junction Temperature		150	$^{\circ}C$

## STPR1020CB(-TR)

### THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
R <sub>th(j-c)</sub>	Junction to Case Thermal Resistance	Per diode	5	°C/W
		Total	2.7	
R <sub>th(c)</sub>	Coupling			°C/W

When the diodes 1 and 2 are used simultaneously :

$$\Delta T_j(\text{diode 1}) = P(\text{diode}) \times R_{th}(\text{per diode}) + P(\text{diode 2}) \times R_{th(c)}$$

### STATIC ELECTRICAL CHARACTERISTICS (per diode)

Symbol	Tests Conditions	Tests Conditions		Min.	Typ.	Max.	Unit
I <sub>R</sub> *	Reverse leakage Current	T <sub>j</sub> = 25°C	V <sub>R</sub> = V <sub>RRM</sub>			20	μA
		T <sub>j</sub> = 100°C			0.15	0.5	mA
V <sub>F</sub> **	Forward Voltage drop	T <sub>j</sub> = 25°C	I <sub>F</sub> = 10 A			1.25	V
		T <sub>j</sub> = 100°C	I <sub>F</sub> = 5 A		0.8	0.85	

Pulse test : \* t<sub>p</sub> = 5 ms, duty cycle < 2 %

\*\* t<sub>p</sub> = 380 μs, duty cycle < 2%

To evaluate the maximum conduction losses use the following equation :

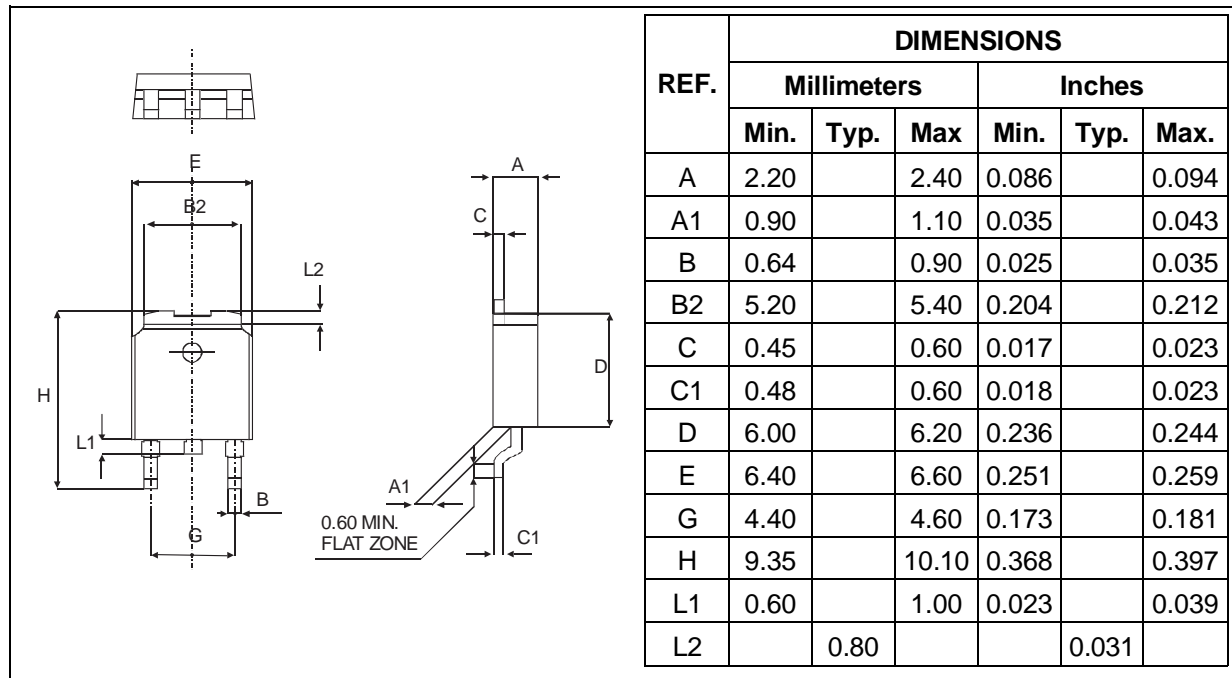
$$P = 0.7 \times I_{F(AV)} + 0.030 I_F^2(RMS)$$

### RECOVERY CHARACTERISTICS

Symbol	Test Conditions			Min.	Typ.	Max.	Unit
t <sub>rr</sub>	T <sub>j</sub> = 25°C	I <sub>F</sub> = 1A V <sub>F</sub> = 30V	dI <sub>F</sub> /dt = -50 A/ms			35	ns
t <sub>fr</sub>	T <sub>j</sub> = 25°C	I <sub>F</sub> = 1A V <sub>FR</sub> = 1.1 x V <sub>F</sub>	tr = 10 ns		20		ns
V <sub>FP</sub>	T <sub>j</sub> = 25°C	I <sub>F</sub> = 1A	tr = 10 ns		5		V

**PACKAGE MECHANICAL DATA**

DPAK



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