SGS-THOMSON MICROELECTRONICS

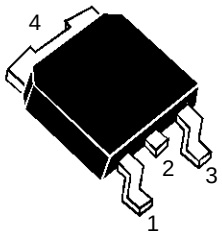
STPR1020CB(-TR)

HIGH EFFICIENCY FAST RECOVERY RECTIFIER DIODES

MAIN PRODUCT CHARACTERISTICS

PRELIMINARY DATASHEET

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



DPAK
(Plastic)

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°C δ = 0.5	Per diode Per device	5 10	A
I_{FSM}	Surge Non Repetitive Forward Current tp = 10 ms Sinusoidal	Per diode	70	A
Tstg	Storage Temperature Range		- 40 to + 150	°C
Tj	Max. Junction Temperature		150	°C

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th\ (j-c)}$	Junction to Case Thermal Resistance	Per diode	5	°C/W
		Total	2.7	
$R_{th\ (c)}$	Coupling			°C/W

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

STATIC ELECTRICAL CHARACTERISTICS (per diode)

Symbol	Tests Conditions	Tests Conditions		Min.	Typ.	Max.	Unit
I_R *	Reverse leakage Current	Tj = 25°C	$V_R = V_{RRM}$			20	µA
		Tj = 100°C			0.15	0.5	mA
V_F **	Forward Voltage drop	Tj = 25°C	I_F = 10 A			1.25	V
		Tj = 100°C	I_F = 5 A		0.8	0.85	

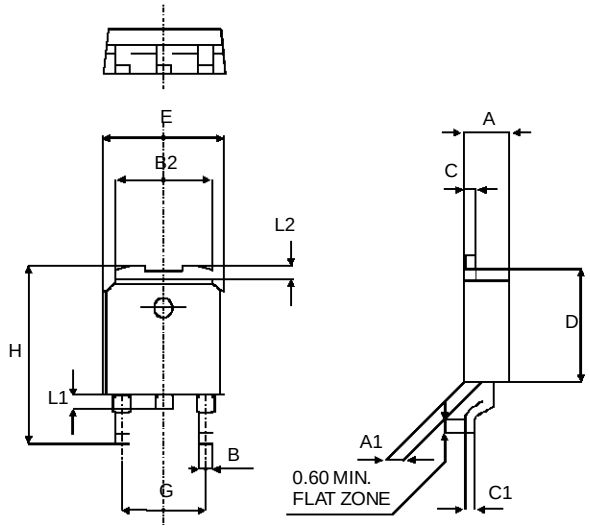
Pulse test : * tp = 5 ms, duty cycle < 2 %
** tp = 380 µs, duty cycle < 2%

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_{rr}	Tj = 25°C	I_F = 1A V_F = 30V	dI_F/dt = -50 A/ms			35	ns
t_{fr}	Tj = 25°C	I_F = 1A $V_{FR} = 1.1 \times V_F$	tr = 10 ns		20		ns
V_{FP}	Tj = 25°C	I_F = 1A	tr = 10 ns		5		V

PACKAGE MECHANICAL DATA
DPAK



REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max	Min.	Typ.	Max.
A	2.20		2.40	0.086		0.094
A1	0.90		1.10	0.035		0.043
B	0.64		0.90	0.025		0.035
B2	5.20		5.40	0.204		0.212
C	0.45		0.60	0.017		0.023
C1	0.48		0.60	0.018		0.023
D	6.00		6.20	0.236		0.244
E	6.40		6.60	0.251		0.259
G	4.40		4.60	0.173		0.181
H	9.35		10.10	0.368		0.397
L1	0.60		1.00	0.023		0.039
L2		0.80			0.031	