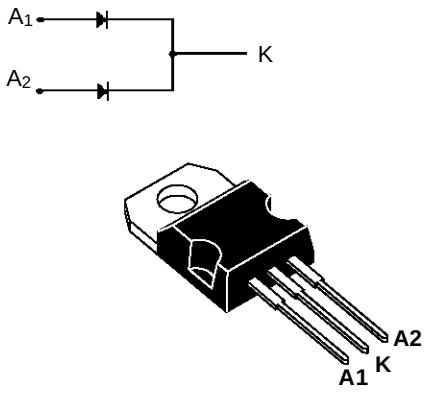
SGS-THOMSON MICROELECTRONICS

STPS3035CT
STPS3045CT

POWER SCHOTTKY RECTIFIER

- VERY SMALL CONDUCTION LOSSES
- NEGLIGIBLE SWITCHING LOSSES
- EXTREMELY FAST SWITCHING
- LOW FORWARD VOLTAGE DROP
- HIGH AVALANCHE CAPABILITY
- LOW THERMAL RESISTANCE
- INSULATED PACKAGE :
  Insulating voltage = 2000V DC
  Capacitance = 12pF



TO220AB
(Plastic)

DESCRIPTION

Dual center tap schottky rectifier suited for switch-mode power supply and high frequency DC to DC converters.

Packaged in TO220AB, this device is intended for use in low voltage, high frequency inverters, free wheeling and polarity protection applications.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter			Value	Unit
$I_{F(RMS)}$	RMS Forward Current		Per diode	30	A
$I_{F(AV)}$	Average Forward Current	Tc = 135°C δ = 0.5	Per diode Per device	15 30	A
I_{FSM}	Surge Non Repetitive Forward Current	Tp = 10 ms Sinusoidal	Per diode	220	A
I_{RRM}	Peak Repetitive Reverse Current	Tp = 2 µs F = 1KHz	Per diode	1	A
Tstg Tj	Storage and Junction Temperature Range			- 65 to + 150 - 65 to + 150	°C
dV/dt	Critical Rate of Rise of Reverse Voltage			1000	V/µs

Symbol	Parameter	STPS		Unit
		3035CT	3045CT	
V_{RRM}	Repetitive Peak Reverse Voltage	35	45	V

THERMAL RESISTANCE

Symbol	Parameter		Value	Unit
$R_{TH\ (j-c)}$	Junction-case	Per diode total	1.60 0.85	°C/W
$R_{TH\ (c)}$	Coupling		0.10	°C/W

When the diodes 1 and 2 are used simultaneously :
ΔT_J(diode 1) = P(diode1) x R_{TH}(Per diode) + P(diode 2) x $R_{TH(c)}$

ELECTRICAL CHARACTERISTICS

STATIC CHARACTERISTICS PER DIODE

Symbol	Tests Conditions		Min.	Typ.	Max.	Unit
I_R **	Tj = 25°C	$V_R = V_{RRM}$			200	µA
	Tj = 125°C				40	mA
V_F *	Tj = 125°C	I_F = 30 A			0.72	V
	Tj = 125°C	I_F = 15 A			0.57	
	Tj = 25°C	I_F = 30 A			0.84	

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

To evaluate the conduction losses use the following equation :
$P = 0.42 \times I_{F(AV)} + 0.01 I_{F^2(RMS)}$

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

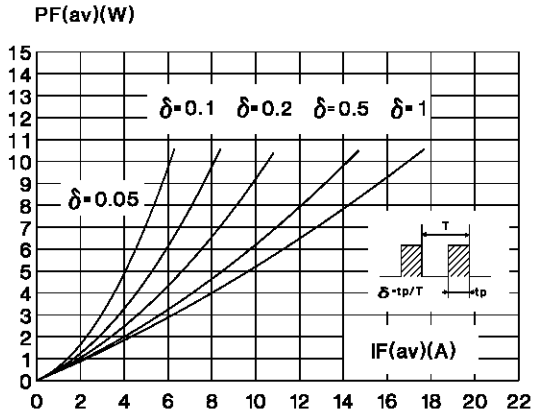


Fig. 2 : Average current versus ambient temperature. (duty cycle : 0.5) (Per diode)

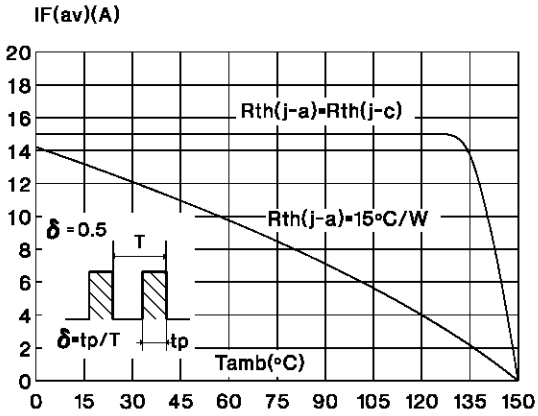


Fig. 3 : Non repetitive surge peak forward current versus overload duration.
(Maximum values) (Per diode)

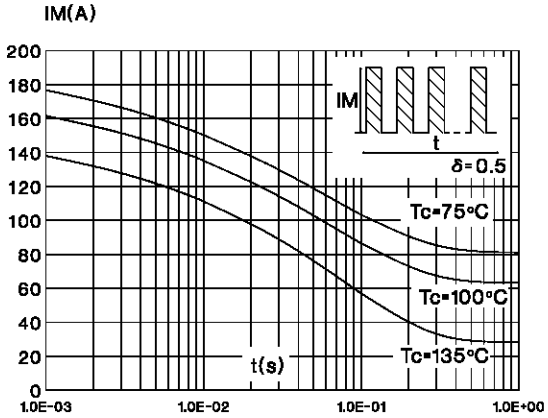


Fig. 4 : Relative variation of thermal transient impedance junction to case versus pulse duration.

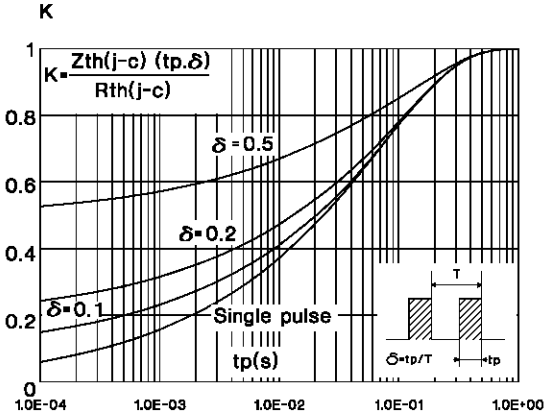


Fig. 5 : Reverse leakage current versus reverse voltage applied. (Typical values) (Per diode)

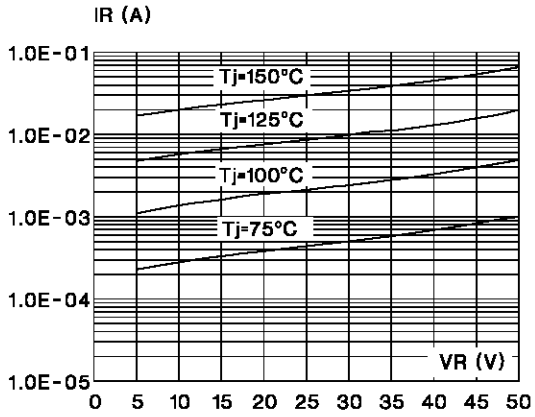


Fig. 6 : Junction capacitance versus reverse voltage applied. (Typical values) (Per diode)

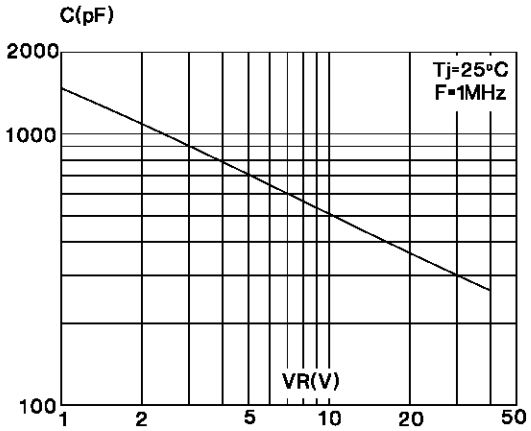
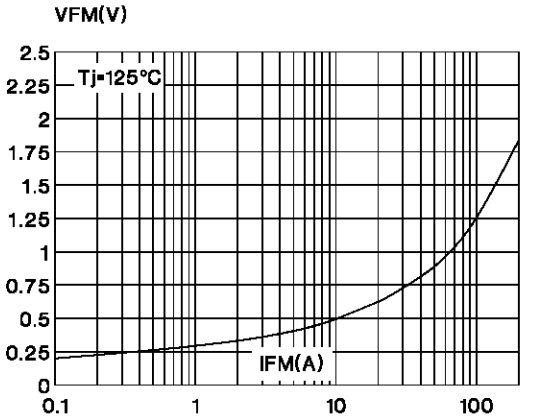
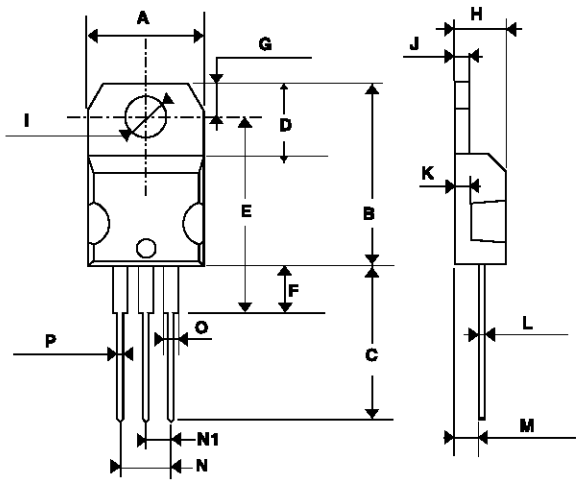


Fig. 7 : Forward voltage drop versus forward current. (Maximum values) (Per diode)



PACKAGE MECHANICAL DATA

TO220AB (JEDEC outline)



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	10.0	10.4	0.393	0.409
B	15.2	15.9	0.598	0.626
C	13	14	0.511	0.551
D	6.2	6.6	0.244	0.260
E	16.4 typ.		0.645 typ.	
F	3.5	4.2	0.137	0.165
G	2.65	2.95	0.104	0.116
H	4.4	4.6	0.173	0.181
I	3.75	3.85	0.147	0.151
J	1.23	1.32	0.048	0.051
K	1.27 typ.		0.050 typ.	
L	0.49	0.70	0.019	0.027
M	2.4	2.72	0.094	0.107
N	4.95	5.15	0.194	0.203
N1	2.40	2.70	0.094	0.106
O	1.14	1.70	0.044	0.067
P	0.61	0.88	0.024	0.034

Cooling method : C
Marking : Type number
Weight : 2 g
Recommended torque value : 0.55m.N
Maximum torque value : 0.7m.N