STTH152

HIGH EFFICIENCY ULTRAFAST DIODE

MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	1.5 A
V_{RRM}	200 V
Tj (max)	175 °C
V_F (max)	0.75 V
trr(max)	32 ns

DO-15
STTH152

FEATURES AND BENEFITS

- Very low conduction losses
- Negligible switching losses
- Low forward and reverse recovery times
- High junction temperature

DESCRIPTION

The STTH152 which is using ST's new 200V planar technology, is specially suited for switching mode base drive & transistor circuits.

The device is also intended for use as a free wheeling diode in power supplies and other power switching applications.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
V_{RRM}	Repetitive peak reverse voltage		200	V
$I_{F(AV)}$	Average forward current	Tl = 115°C δ = 0.5	1.5	A
I_{FSM}	Surge non repetitive forward current	tp=10 ms Sinusoidal	80	A
T_{stg}	Storage temperature range		-65 +175	°C
Tj	Maximum operating junction temperature		175	°C

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to ambient*	45	°C/W

* On infinite heatsink with 10mm lead length.

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Tests conditions		Min.	Typ.	Max.	Unit
I_R *	Reverse leakage current	Tj = 25°C	$V_R = V_{RRM}$			1.5	µA
		Tj = 125°C			2	40	
V_F **	Forward voltage drop	Tj = 25°C	I_F = 1.5A			0.95	V
		Tj = 125°C			0.66	0.75	

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

To evaluate the maximum conduction losses use the following equation :
$P = 0.60 \times I_{F(AV)} + 0.10 \times I_F{}^2{}_{(RMS)}$

DYNAMIC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Tests conditions		Min.	Typ.	Max.	Unit
trr	Reverse recovery time	I_F = 1A dI_F/dt = -50A/µs V_R = 30V	Tj = 25°C			32	ns
tfr	Forward recovery time	I_F = 1.5A dI_F/dt = 50A/µs V_{FR} = 1.1 x $V_F$max	Tj = 25°C		50		ns
V_{FP}	Forward recovery voltage		Tj = 25°C		1.8		V

Fig. 1: Average forward power dissipation versus average forward current.

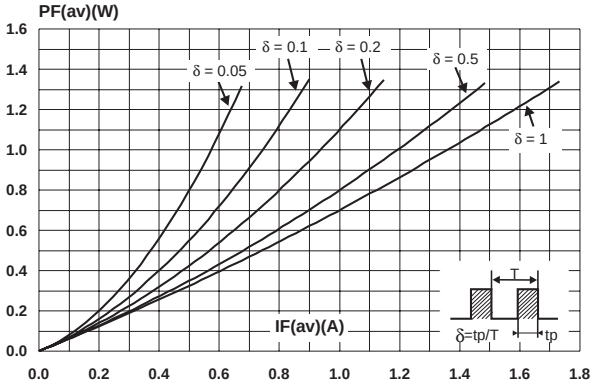


Fig. 2: Average forward current versus ambient temperature (δ=0.5).

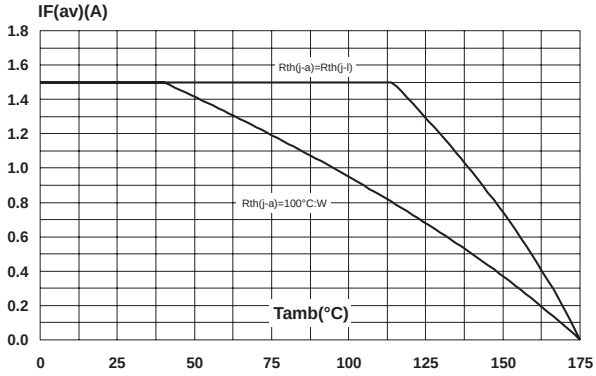


Fig. 3: Thermal resistance versus lead length.

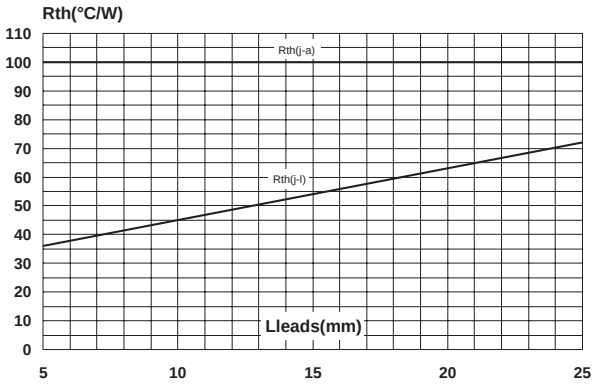


Fig. 4: Relative variation of thermal impedance junction to ambient versus pulse duration (printed circuit board epoxy FR4, LIeads = 10mm).

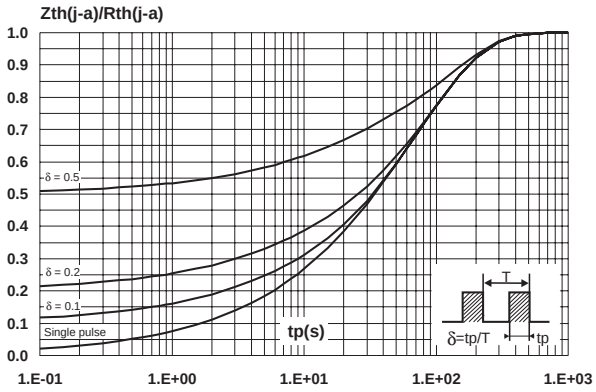


Fig. 5: Forward voltage drop versus forward current.

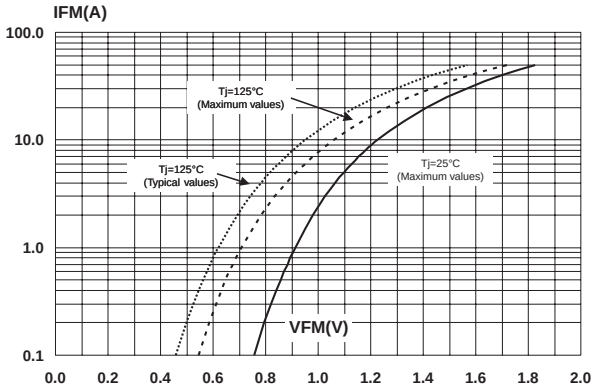


Fig. 6: Junction capacitance versus reverse voltage applied (typical values).

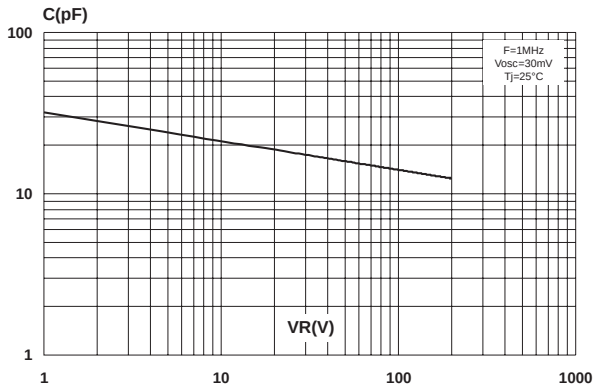


Fig. 7: Reverse recovery time versus dI_F/dt (90% confidence).

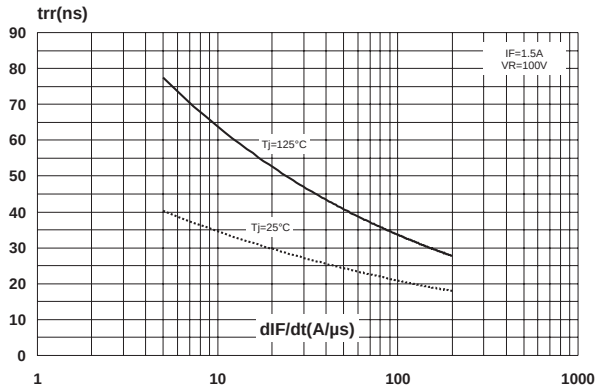


Fig. 8: Peak reverse recovery current versus dI_F/dt (90% confidence).

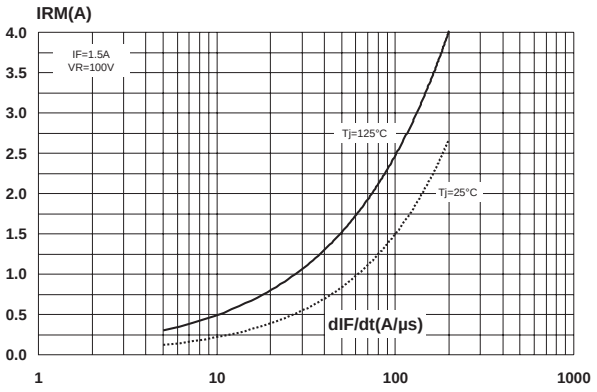
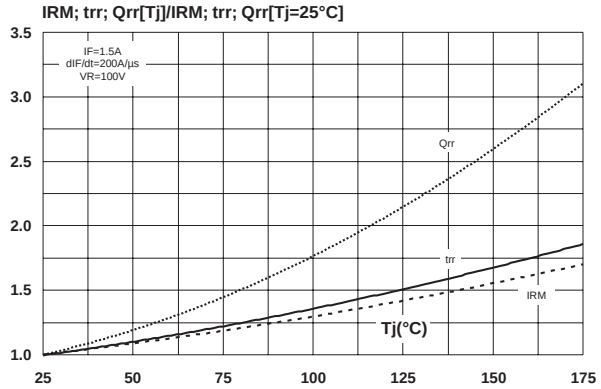
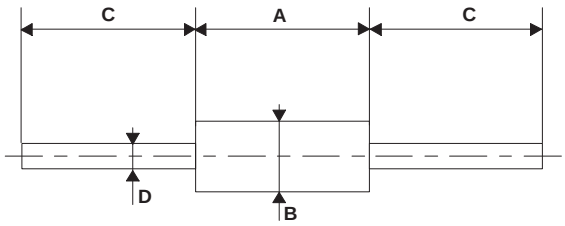


Fig. 9: Relative variations of dynamic parameters versus junction temperature.



PACKAGE MECHANICAL DATA

DO-15



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	6.05	6.75	0.238	0.266
B	2.95	3.53	0.116	0.139
C	26	31	1.024	1.220
D	0.71	0.88	0.028	0.035

Ordering code	Marking	Package	Weight	Base qty	Delivery mode
STTH152	STTH152	DO-15	0.4 g	1000	Ammopack
STTH152RL	STTH152	DO-15	0.4 g	6000	Tape and reel

- White band indicates cathode
- Epoxy meets UL 94,V0