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STTH6102TV

HIGH EFFICIENCY ULTRAFAST DIODE

MAIN PRODUCT CHARACTERISTICS

I_{F(AV)}	2 x 30 A
V_{RRM}	200 V
T_{j (max)}	150 °C
V_{F (typ)}	0.70 V
t_{rr (typ)}	25 ns

FEATURES AND BENEFITS

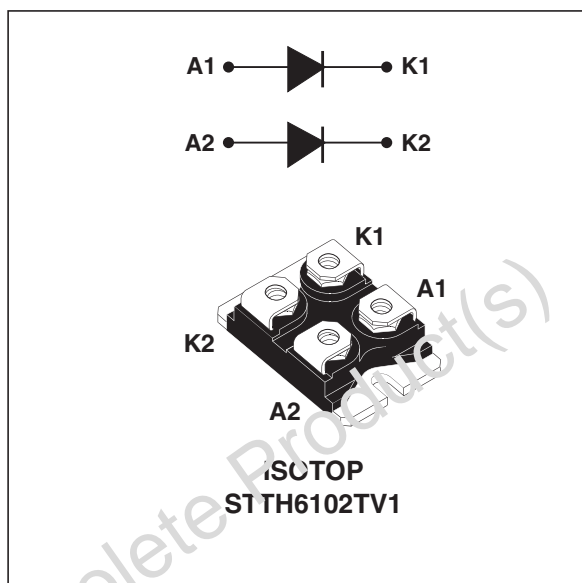
- Suited for welding and high power equipment
- Very low forward losses
- Low recovery times
- High surge current capability
- Insulated:
 Insulating voltage = 2500 V_{RMS}
 Capacitance < 45 pF
- Low leakage current

DESCRIPTION

Dual center tap rectifier suited for welding equipment and high power industrial application. Packaged in ISOTOP, this device is intended for use in the secondary rectification of power converters.

ABSOLUTE RATINGS (limiting values, per diode)

Symbol	Parameter		Value	Unit
V _{RRM}	Repetitive peak reverse voltage		200	V
I _{F(RMS)}	RMS forward current	Per diode	80	A
I _{F(AV)}	Average forward current $\delta = 0.5$	T _c = 115°C Per diode	30	A
I _{F(SM)}	Surge non repetitive forward current	tp = 10 ms Sinusoidal per diode	400	A
T _{stg}	Storage temperature range		- 55 + 150	°C
T _j	Maximum operating junction temperature		150	°C



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THERMAL PARAMETERS

Symbol	Parameter	Maximum	Unit
R _{th(j-c)}	Junction to case	Per diode	1.2
		Per device	0.65
R _{th(j-c)}	Coupling	0.1	°C/W

When the diodes 1 and 2 are used simultaneously:

$$\Delta T_j (\text{diode1}) = P(\text{diode1}) \times R_{th(j-c)} (\text{per diode}) + P(\text{diode2}) \times R_{th(c)}$$

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Tests conditions		Min.	Typ.	Max.	Unit
I _R *	Reverse leakage current	T _j = 25°C	V _R = V _{RRM}			50	μA
		T _j = 125°C			25	250	
V _F **	Forward voltage drop	T _j = 25°C	I _F = 30 A			1.05	V
		T _j = 25°C	I _F = 60 A			1.15	
		T _j = 150°C	I _F = 30 A		0.70	0.81	
		T _j = 150°C	I _F = 60 A			0.96	

Pulse test: * t_p = 5ms, δ < 2%

** t_p = 380μs, δ < 2%

To evaluate the maximum conduction losses use the following equation :

$$P = 0.66 \times I_{F(AV)} + 0.005 I_{F(RMS)}^2$$

DYNAMIC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Tests conditions		Min.	Typ.	Max.	Unit
t _{rr}	Reverse recovery time	T _j = 25°C	I _F = 1 A V _R = 30V dI _F /dt = 200 A/μs		25	30	ns
I _{RM}	Reverse recovery current	T _j = 125°C	I _F = 30 A V _R = 160V dI _F /dt = 200 A/μs		6.8	8.8	A
t _{fr}	Forward recovery time	T _j = 25°C	I _F = 30 A dI _F /dt = 200 A/μs V _{FR} = 1.1 x V _{Fmax}			220	ns
V _{FP}	Forward recovery voltage	T _j = 25°C	I _F = 30 A dI _F /dt = 200 A/μs		2.5		V

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Fig. 1: Peak current versus duty cycle (per diode).

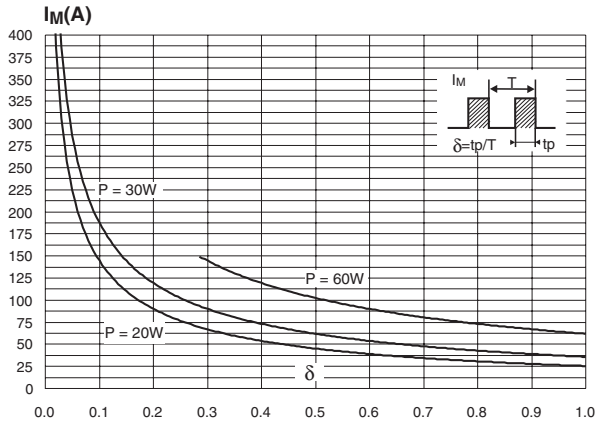


Fig. 2-1: Forward voltage drop versus forward current (typical values, per diode).

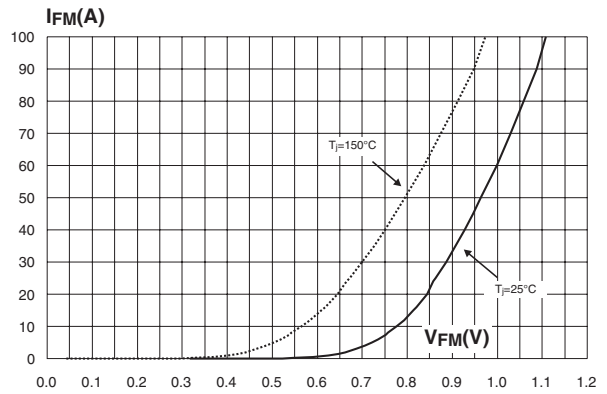


Fig. 2-2: Forward voltage drop versus forward current (maximum values, per diode).

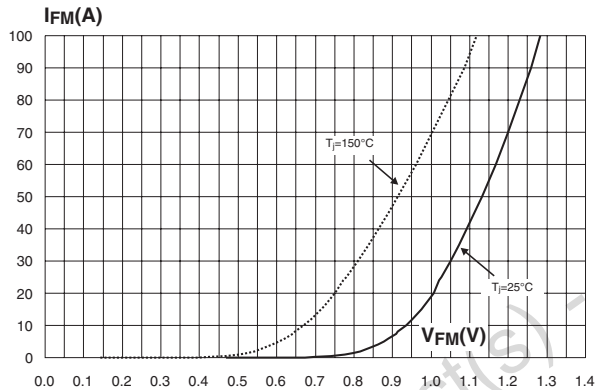


Fig. 3: Relative variation of thermal impedance junction to case versus pulse duration.

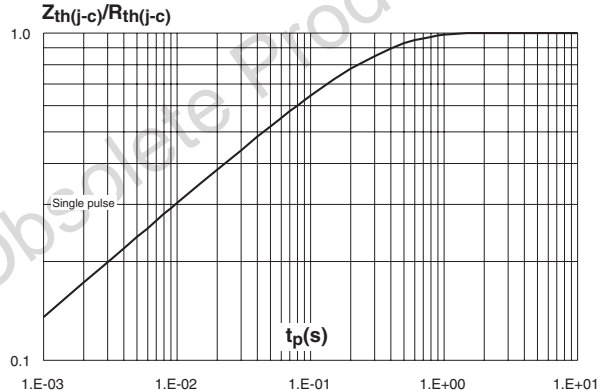


Fig. 4: Junction capacitance versus reverse voltage applied (typical values, per diode).

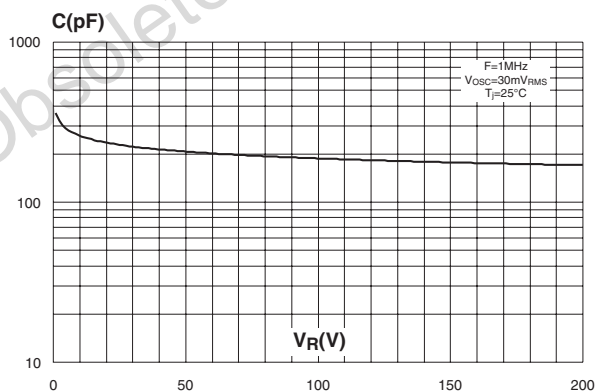
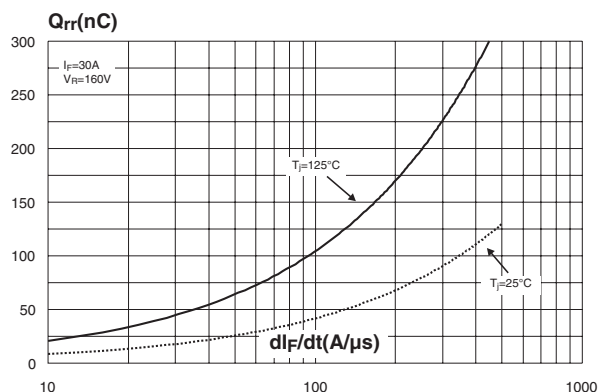


Fig. 5: Reverse recovery charges versus di_F/dt (typical values, per diode).



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Fig. 6: Reverse recovery time versus di_F/dt (typical values, per diode).

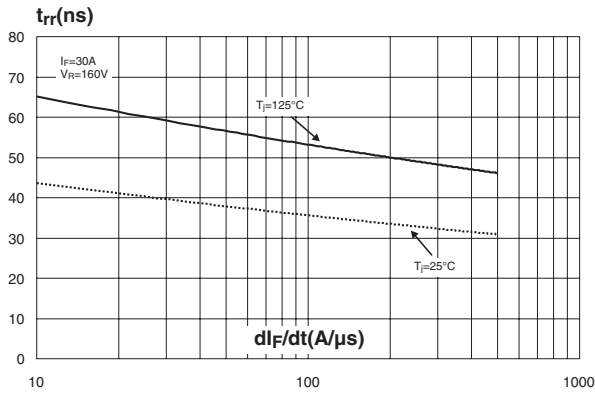


Fig. 7: Peak reverse recovery current versus di_F/dt (typical values, per diode).

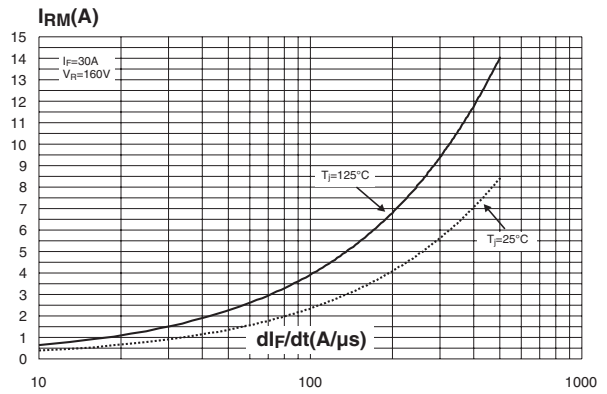
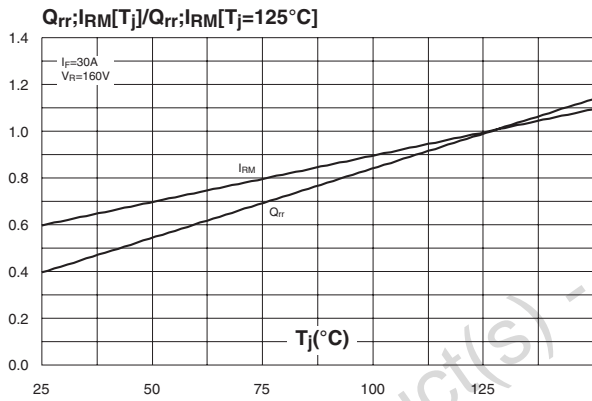


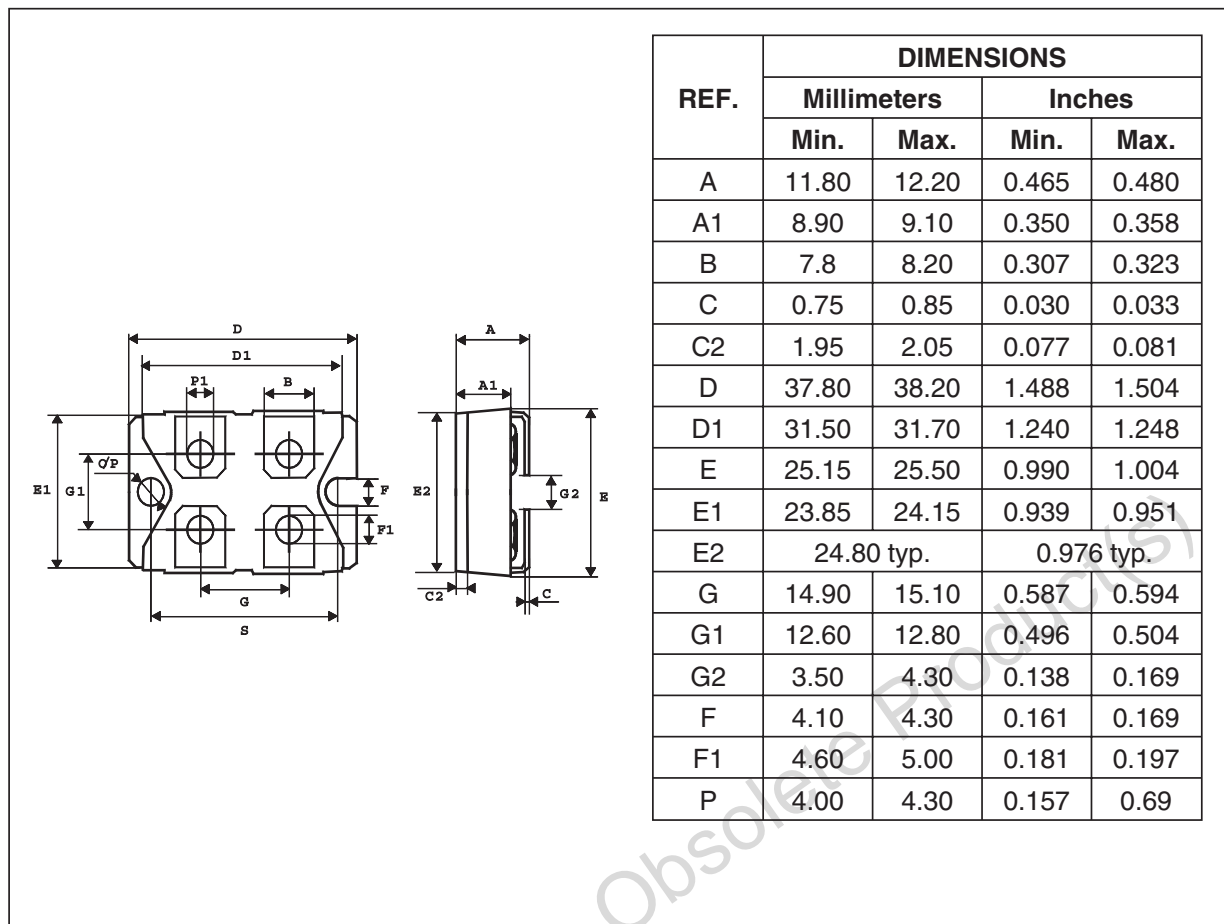
Fig. 8: Dynamic parameters versus junction temperature.



Obsolete Product(s) - Obsolete Product(s)

STTH6102TV

PACKAGE MECHANICAL DATA ISOTOP



Ordering code	Marking	Package	Weight	Base qty	Delivery mode
STTH6102TV1	STTH6102TV1	ISOTOP	27 g (without screws)	10 (with screws)	Tube

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