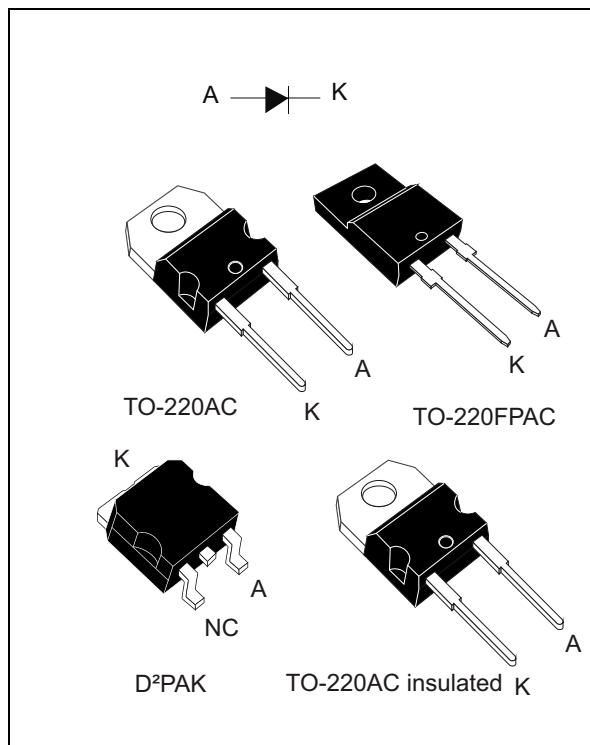




STTH8R06

Turbo 2 ultrafast high voltage rectifier

Datasheet - production data



Description

The STTH8R06, which uses ST Turbo 2 600 V technology, is specially suited as boost diode in continuous mode power factor corrections and hard switching conditions.

Table 1. Device summary

Symbol	Value
$I_{F(AV)}$	8 A
V_{RRM}	600 V
I_{RM} (typ)	5.5 A
T_j (max)	175 °C
V_F (typ)	1.4 V
t_{rr} (max)	25 ns

Features

- Ultrafast switching
- Low reverse recovery current
- Low thermal resistance
- Reduces switching losses
- Package insulation voltage:
 - TO-220AC Ins: 2500 V_{RMS} sine
 - TO-220FPAC: 2000 V_{RMS} sine

1 Characteristics

Table 2. Absolute ratings (limiting values at 25 °C unless otherwise specified)

Symbol	Parameter			Value	Unit
V _{RRM}	Repetitive peak reverse voltage			600	V
I _{F(RMS)}	Forward current rms	TO-220AC / TO-220FPAC / D ² PAK			30
		TO-220AC ins.			24
I _{F(AV)}	Average forward current δ = 0.5, square wave	TO-220AC / D ² PAK	T _c = 130 °C	8	A
		TO-220FPAC	T _c = 85 °C		
		TO-220AC ins.	T _c = 100 °C		
I _{FSM}	Surge non repetitive forward current			t _p = 10 ms sinusoidal	80 A
T _{stg}	Storage temperature range			-65 to + 175	°C
T _j	Maximum operating junction temperature			175	°C

Table 3. Thermal resistance

Symbol	Parameter	Value (max)	Unit
R _{th(j-c)}	Junction to case	TO-220AC / D ² PAK	2.2
		TO-220FPAC	4.6
		TO-220AC ins.	3.8

Table 4. Static electrical characteristics

Symbol	Parameter	Test conditions		Min.	Typ.	Max.	Unit
I _R	Reverse leakage current	T _j = 25 °C	V _R = V _{RRM}			30	μA
		T _j = 125 °C			35	400	
V _F	Forward voltage drop	T _j = 25 °C	I _F = 8 A			2.9	V
		T _j = 125 °C			1.4	1.8	

To evaluate the conduction losses use the following equation: $P = 1.16 \times I_{F(AV)} + 0.08 I_{F(RMS)}^2$

Table 5. Dynamic characteristics

Symbol	Parameter	Test conditions		Min.	Typ.	Max.	Unit
t_{rr}	Reverse recovery time	$T_j = 25^\circ\text{C}$	$I_F = 0.5 \text{ A},$ $I_{rr} = 0.25 \text{ A}, I_R = 1 \text{ A}$			25	ns
			$I_F = 1 \text{ A},$ $dI_F/dt = -50 \text{ A}/\mu\text{s},$ $V_R = 30 \text{ V}$			45	
I_{RM}	Reverse recovery current	$T_j = 125^\circ\text{C}$	$I_F = 8 \text{ A}, V_R = 400 \text{ V},$ $dI_F/dt = -200 \text{ A}/\mu\text{s}$		5.5	7.2	A
S factor	Softness factor				0.3		
Q_{rr}	Reverse recovery charges				150		nC
t_{fr}	Forward recovery time	$T_j = 25^\circ\text{C}$	$I_F = 8 \text{ A},$ $dI_F/dt = 64 \text{ A}/\mu\text{s}$ $V_{FR} = 1.1 \times V_{Fmax}$			150	ns
V_{FP}	Forward recovery voltage					5	V

