SGS-THOMSON MICROELECTRONICS

STHV82

N - CHANNEL ENHANCEMENT MODE POWER MOS TRANSISTOR

ADVANCE DATA

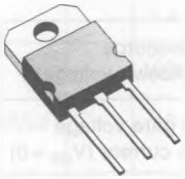
TYPE	V_{DSS}	$R_{DS(on)}$	I_D
STHV82	800 V	2 Ω	5.5 A

- 800 V - HIGH VOLTAGE FOR OFF-LINE APPLICATIONS
- ULTRA FAST SWITCHING FOR OPERATION AT 100 KHz
- EASY DRIVE FOR REDUCED COST AND SIZE

INDUSTRIAL APPLICATIONS:

- SWITCHING POWER SUPPLIES

N - channel enhancement mode POWER MOS field effect transistor. Easy drive and very fast switching times make this POWER MOS ideal for very high speed switching applications. It is ideal for off-line SMPS where a high breakdown voltage POWER MOS is required, particulary in single switch design such as flyback and forward converters.



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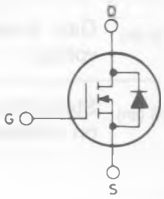
INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

V_{DS}	Drain-source voltage ($V_{GS} = 0$)	800	V
V_{GS}	Gate-source voltage	±20	V
I_D	Drain current (continuous) at $T_c = 25°C$	5.5	A
I_{DM}	Drain current (pulsed)	16	A
P_{tot}	Total dissipation at $T_c < 25°C$	125	W
	Derating factor	1	W/°C
T_{stg}	Storage temperature	−65 to 150	°C
T_j	Max. operating junction temperature	150	°C

THERMAL DATA

$R_{thj\text{-}case}$	Thermal resistance junction-case	max	1	°C/W

ELECTRICAL CHARACTERISTICS (T_{case} = 25°C unless otherwise specified)

Parameters		Test Conditions		Min.	Typ.	Max.	Unit
OFF							
$V_{(BR)\ DSS}$	Drain-source breakdown voltage	I_D = 250 μA	V_{GS} = 0	800			V
I_{DSS}	Zero gate voltage drain current (V_{GS} = 0)	V_{DS} = Max Rating V_{DS} = Max Rating x 0.8	T_c = 125°C			250 1000	μA μA
I_{GSS}	Gate-body leakage current (V_{DS} = 0)	V_{GS} = ±20 V				±100	nA
ON							
$V_{GS\ (th)}$	Gate threshold voltage	V_{DS} = V_{GS}	I_D = 250 μA	2		4	V
$R_{DS\ (on)}$	Static drain-source on resistance	V_{GS} = 10 V	I_D = 2.5 A			2	Ω
DYNAMIC							
g_{fs}	Forward transconductance	V_{DS} = 25 V	I_D = 2 A	2			mho
C_{iss} C_{oss} C_{rss}	Input capacitance Output capacitance Reverse transfer capacitance	V_{DS} = 25 V V_{GS} = 0	f = 1 MHz		1000 150 90		pF pF pF
SWITCHING							
$t_{d\ (on)}$ t_r $t_{d\ (off)}$ t_f	Turn-on time Rise time Turn-off delay time Fall time	V_{DD} = 400 V R_{GS} = 50 Ω	I_D = 2 A V_{GS} = 10 V		40 100 300 100		ns ns ns ns
Q_g	Total Gate Charge	V_{DD} = 500 V V_{GS} = 10 V	I_D = 6 A		70		nC

ELECTRICAL CHARACTERISTICS (Continued)

Parameters		Test Conditions	Min.	Typ.	Max.	Unit
SOURCE DRAIN DIODE						
I_{SD} I_{SDM}	Source-drain current Source-drain current (pulsed)				5.5 16	A A
V_{SD}	Forward on voltage	I_{SD} = 5.5 A V_{GS} = 0		1.4		V
t_{rr}	Reverse recovery time	I_{SD} = 5.5 A di/dt = 100A/μs		1000		ns
Q_{rr}	Reverse recovery charge			15		μC