SGS-THOMSON MICROELECTRONICS

STLT30
STLT29

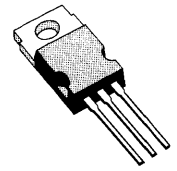
N - CHANNEL ENHANCEMENT MODE LOW THRESHOLD POWER MOS TRANSISTORS

ADVANCE DATA

TYPE	V_{DSS}	$R_{DS(on)}$	I_D
STLT30	60 V	0.08 Ω	25 A
STLT29	50 V	0.08 Ω	25 A

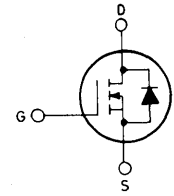
- LOGICAL LEVEL (+5V) CMOS/TTL COMPATIBLE INPUT
- HIGH INPUT IMPEDANCE
- ULTRA FAST SWITCHING

N - channel enhancement mode POWER MOS field effect transistors. The low input voltage - logic level - and easy drive make these devices ideal for automotive and industrial applications. Typical uses are in relay and actuator driving in the automotive enviroment.



TO-220

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS		STLT30	STLT29	
V_{DS}	Drain-source voltage ($V_{GS}=0$)	60	50	V
V_{DGR}	Drain-gate voltage ($R_{GS}=20$ KΩ)	60	50	V
V_{GS}	Gate-source voltage	±15		V
I_D	Drain current (cont.) at $T_c=25°C$	25		A
I_D	Drain current (cont.) at $T_c=100°C$	15.7		A
I_{DM}	Drain current (pulsed)	80		A
P_{tot}	Total dissipation at $T_c<25°C$	100		W
	Derating factor	0.8		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	1.25	°C/W
$R_{thj\text{ - amb}}$	Thermal resistance junction-ambient		75	°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 for **STLT30** for **STLT29**	V_{GS} = 0	 60 50			 V 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} = ±15 V				±100	nA
ON							
$V_{GS\ (th)}$	Gate threshold voltage	V_{DS} = V_{GS}	I_D = 250 μA	1		2.5	V
$R_{DS\ (on)}$	Static drain-source on resistance	V_{GS} = 5V	I_D = 12.5 A			0.08	Ω
DYNAMIC							
g_{fs}	Forward transconductance	V_{DS} = 15 V	I_D = 12.5 A	9			mho
C_{iss} C_{oss} C_{rss}	Input capacitance Output capacitance Reverse transfer capacitance	V_{DS} = 25 V V_{GS} = 0	f = 1 MHz		930	1200 600 130	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} = 25 V R_{GS} = 50 Ω	I_D = 12.5 A V_{GS} = 5 V		25 210 55 75		ns ns ns ns
Q_g	Total Gate Charge	V_{DS} = 25 V V_{GS} = 5 V	I_D = 25 A		19		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)					25 80	A A
V_{SD}	Forward on voltage	I_{SD} = 25 A	V_{GS} = 0		1.5		V
t_{rr}	Reverse recovery time				300		ns
Q_{rr}	Reverse recovery charge	I_{SD} = 25 A	di/dt = 100A/μs		0.3		μC