

N - CHANNEL ENHANCEMENT MODE LOW THRESHOLD POWER MOS TRANSISTORS

SGS-THOMSON

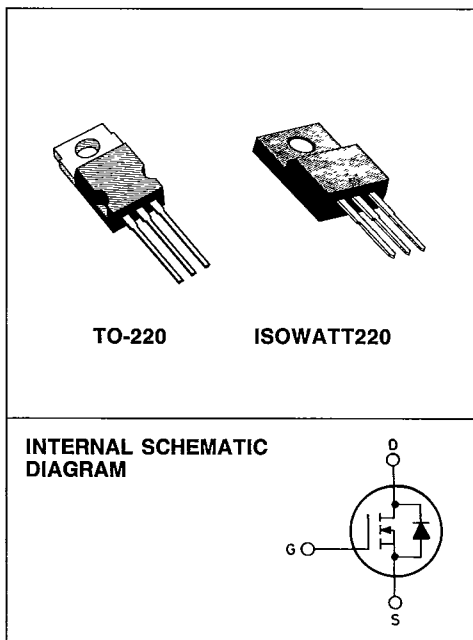
30E D

ADVANCE DATA

TYPE	V _{DSS}	R _{DS(on)}	I _D
STLT30	60 V	0.08 Ω	25 A
STLT30/FI	60 V	0.08 Ω	15 A
STLT29	50 V	0.08 Ω	25 A
STLT29/FI	50 V	0.08 Ω	15 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 environment.



ABSOLUTE MAXIMUM RATINGS

		TO-220 ISOWATT220	STLT30 STLT30FI	STLT29 STLT29FI	
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	15	A
I _D	Drain current (cont.) at T _c = 100°C		15.7	9.5	A
I _{DM}	Drain current (pulsed)		80	80	A
P _{tot}	Total dissipation at T _c < 25°C		100	35	W
	Derating factor		0.8	0.28	W/°C
T _{stg}	Storage temperature		-65 to 150		°C
T _j	Max. operating junction temperature		150		°C

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This is advanced information on a new product now in development or undergoing evaluation. Details are subject to change without notice

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THERMAL DATA

TO-220

ISOWATT220

$R_{thj - case}$	Thermal resistance junction-case	max	1.25	3.75	°C/W
$R_{thj - amb}$	Thermal resistance junction-ambient	max	75		°C/W

ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}\text{C}$ unless otherwise specified)

Parameters	Test Conditions	Min.	Typ.	Max.	Unit
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OFF

$V_{(BR) DSS}$	Drain-source breakdown voltage	$I_D = 250 \mu\text{A}$ for STLT30/FI for STLT29/FI	$V_{GS} = 0$	60 50		V V
I_{DSS}	Zero gate voltage drain current ($V_{GS} = 0$)	$V_{DS} = \text{Max Rating}$ $V_{DS} = \text{Max Rating} \times 0.8$	$T_c = 125^{\circ}\text{C}$		250 1000	μA μA
I_{GSS}	Gate-body leakage current ($V_{DS} = 0$)	$V_{GS} = \pm 15 \text{ V}$			± 100	nA

ON

$V_{GS(th)}$	Gate threshold voltage	$V_{DS} = V_{GS}$	$I_D = 250 \mu\text{A}$	1		2.5 V
$R_{DS(on)}$	Static drain-source on resistance	$V_{GS} = 5 \text{ V}$	$I_D = 12.5 \text{ A}$			0.08 Ω

DYNAMIC

g_{fs}	Forward transconductance	$V_{DS} = 15 \text{ V}$	$I_D = 12.5 \text{ A}$	9		mho
C_{iss}	Input capacitance	$V_{DS} = 25 \text{ V}$	$f = 1 \text{ MHz}$		930	1200 pF
C_{oss}	Output capacitance	$V_{GS} = 0$				600 pF
C_{rss}	Reverse transfer capacitance					130 pF

SWITCHING

$t_d(on)$	Turn-on time	$V_{DD} = 25 \text{ V}$	$I_D = 12.5 \text{ A}$		25	ns
t_r	Rise time	$R_{GS} = 50 \Omega$	$V_{GS} = 5 \text{ V}$		210	ns
$t_d(off)$	Turn-off delay time				55	ns
t_f	Fall time				75	ns
Q_g	Total Gate Charge	$V_{DS} = 25 \text{ V}$ $V_{GS} = 5 \text{ V}$	$I_D = 25 \text{ A}$		19	nC

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T-39-13

ELECTRICAL CHARACTERISTICS (Continued)

Parameters	Test Conditions	Min.	Typ.	Max.	Unit
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SOURCE DRAIN DIODE

I_{SD}	Source-drain current			25	A
I_{SDM}	Source-drain current (pulsed)			80	A
V_{SD}	Forward on voltage	$I_{SD} = 25 \text{ A}$	$V_{GS} = 0$	1.5	V
t_{rr}	Reverse recovery time			300	ns
Q_{rr}	Reverse recovery charge	$I_{SD} = 25 \text{ A}$	$di/dt = 100 \text{ A}/\mu\text{s}$	0.3	μC