SGS-THOMSON MICROELECTRONICS

BUZ76

N - CHANNEL ENHANCEMENT MODE POWER MOS TRANSISTOR

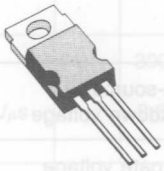
TYPE	V_{DSS}	$R_{DS(on)}$	I_D
BUZ76	400 V	1.8 Ω	3 A

- HIGH VOLTAGE - FOR OFF-LINE APPLICATIONS
- ULTRA FAST SWITCHING
- EASY DRIVE - FOR REDUCED COST AND SIZE

INDUSTRIAL APPLICATIONS:

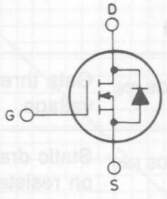
- ELECTRONIC LAMP BALLAST
- DC SWITCH

N - channel enhancement mode POWER MOS field effect transistor. Easy drive and very fast switching times make this POWER MOS transistor ideal for high speed switching applications. Applications include off-line use, constant current source, ultrasonic equipment and switching power supply start-up circuits.



TO-220

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

V_{DS}	Drain-source voltage ($V_{GS} = 0$)	400	V
V_{DGR}	Drain-gate voltage ($R_{GS} = 20$ KΩ)	400	V
V_{GS}	Gate-source voltage	± 20	V
I_D	Drain current (continuous) $T_c = 35°C$	3	A
I_{DM}	Drain current (pulsed)	12	A
P_{tot}	Total dissipation at $T_c < 25°C$	40	W
T_{stg}	Storage temperature	– 55 to 150	°C
T_j	Max. operating junction temperature	150	°C
	DIN humidity category (DIN 40040)	E	
	IEC climatic category (DIN IEC 68-1)	55/150/56	

THERMAL DATA

$R_{thj\text{ - }case}$	Thermal resistance junction-case	max	3.1	°C/W
$R_{thj\text{ - }amb}$	Thermal resistance junction-ambient	max	75	°C/W

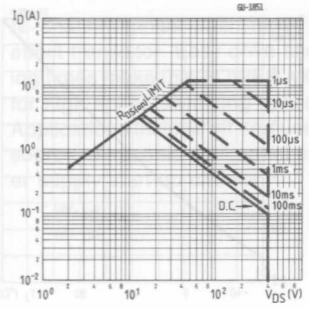
ELECTRICAL CHARACTERISTICS ($T_j = 25°C$ unless otherwise specified)

Parameters		Test Conditions		Min.	Typ.	Max.	Unit
OFF							
$V_{(BR)\ DSS}$	Drain-source breakdown voltage	$I_D = 250\ \mu A$	$V_{GS} = 0$	400			V
I_{DSS}	Zero gate voltage drain current ($V_{GS} = 0$)	$V_{DS} =$ Max Rating $V_{DS} =$ Max Rating	 $T_j = 125°C$			250 1000	μA μA
I_{GSS}	Gate-body leakage current ($V_{DS} = 0$)	$V_{GS} = \pm 20$ V				± 100	nA
ON							
$V_{GS\ (th)}$	Gate threshold voltage	$V_{DS} = V_{GS}$	$I_D = 1$ mA	2.1		4	V
$R_{DS\ (on)}$	Static drain-source on resistance	$V_{GS} = 10$ V	$I_D = 1.5$ A			1.8	Ω
DYNAMIC							
g_{fs}	Forward transconductance	$V_{DS} = 25$ V	$I_D = 1.5$ A	0.8			mho
C_{iss} C_{oss} C_{rss}	Input capacitance Output capacitance Reverse transfer capacitance	$V_{DS} = 25$ V $V_{GS} = 0$	$f = 1$ MHz			500 80 60	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	$V_{DD} = 30$ V $R_{GS} = 50\ \Omega$	$I_D = 2.5$ A $V_{GS} = 10$ V			20 60 65 40	ns ns ns ns

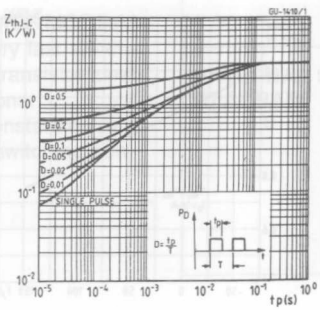
ELECTRICAL CHARACTERISTICS (Continued)

Parameters		Test Conditions		Min.	Typ.	Max.	Unit
SOURCE DRAIN DIODE							
I_{SD}	Source-drain current	T_c = 25°C				3	A
I_{SDM}	Source-drain current (pulsed)					12	A
V_{SD}	Forward on voltage	I_{SD} = 6 A	V_{GS} = 0			1.4	V
t_{rr}	Reverse recovery time				300		ns
Q_{rr}	Reverse recovered charge	I_{SD} = 3 A	di/dt = 100A/μs		2.5		μC

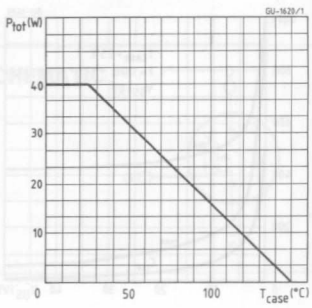
Safe operating areas



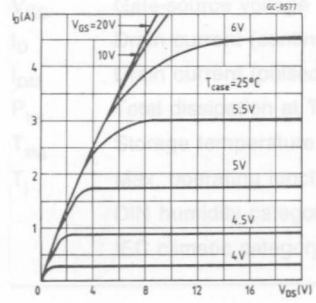
Thermal impedance



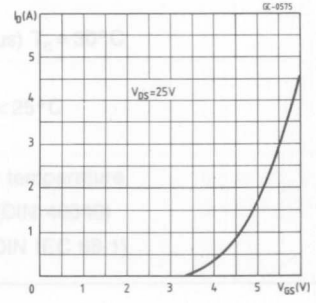
Derating curve



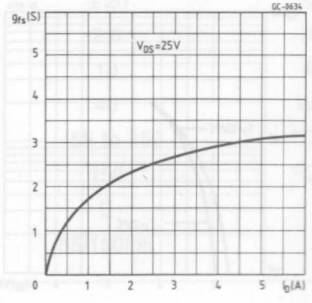
Output characteristics



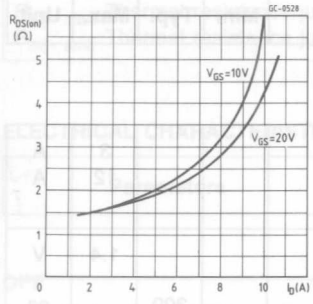
Transfer characteristics



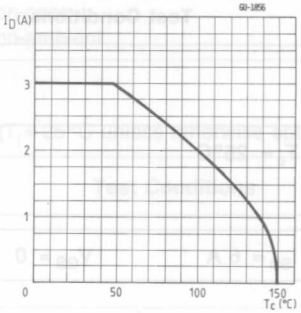
Transconductance



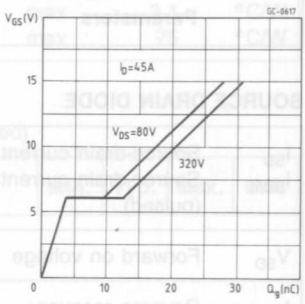
Static drain-source on resistance



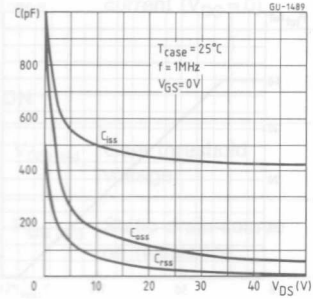
Maximum drain current vs temperature



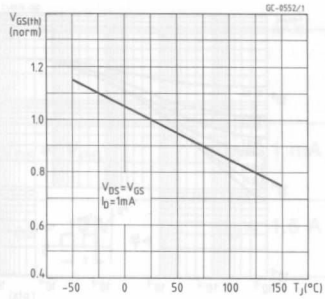
Gate charge vs gate-source voltage



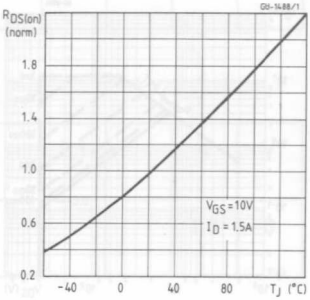
Capacitance variation



Gate threshold voltage vs temperature



Drain-source on resistance vs temperature



Source-drain diode forward characteristics