SGS-THOMSON MICROELECTRONICS

BUZ76

N - CHANNEL ENHANCEMENT MODE POWER MOS TRANSISTOR

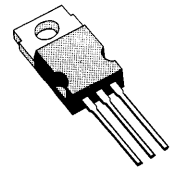
TYPE	V_{DSS}	$R_{DS(on)}$	I_D
BUZ76	400 V	1.8 Ω	3 A

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

INDUSTRIAL APPLICATIONS:

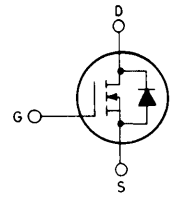
- ELECTRONIC LAMP BALLAST
- DC SWITCH

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

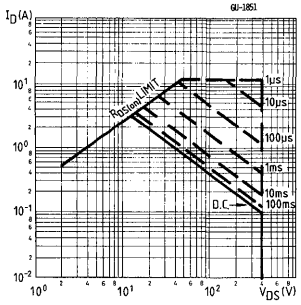
ELECTRICAL CHARACTERISTICS (T_j = 25°C unless otherwise specified)

Parameters		Test Conditions		Min.	Typ.	Max.	Unit
OFF							
$V_{(BR)\ DSS}$	Drain-source breakdown voltage	I_D = 250 μA	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} = ±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 Ω	I_D = 2.5 A V_{GS} = 10 V			20 60 65 40	ns ns ns ns

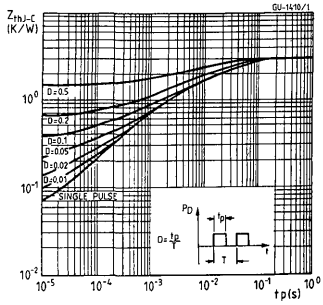
ELECTRICAL CHARACTERISTICS (Continued)

Parameters		Test Conditions		Min.	Typ.	Max.	Unit
SOURCE DRAIN DIODE							
I_{SD} I_{SDM}	Source-drain current Source-drain current (pulsed)	T_c = 25°C				3 12	A 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

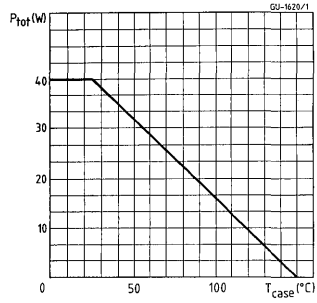
Safe operating areas



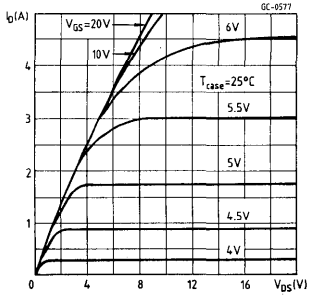
Thermal impedance



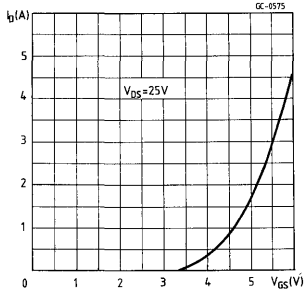
Derating curve



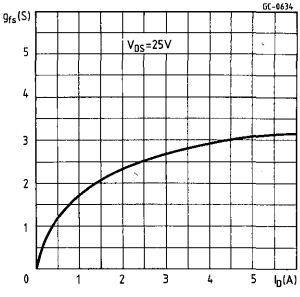
Output characteristics



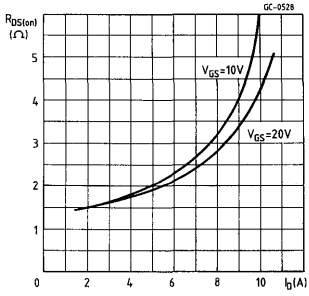
Transfer characteristics



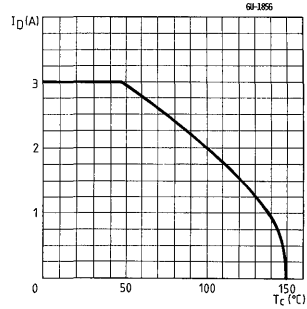
Transconductance



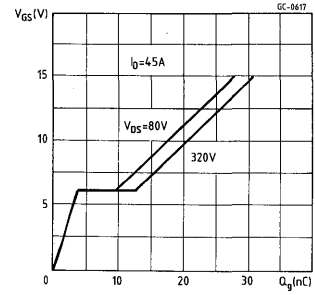
Static drain-source on resistance



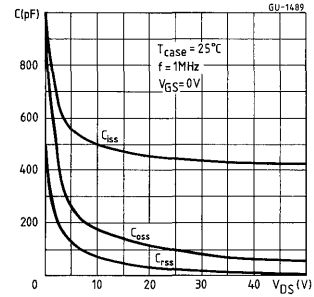
Maximum drain current vs temperature



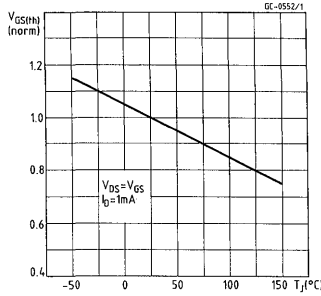
Gate charge vs gate-source voltage



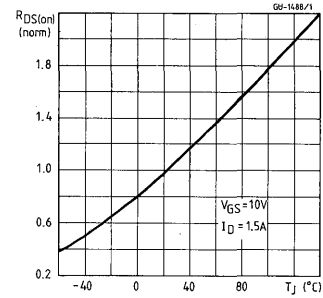
Capacitance variation



Gate threshold voltage vs temperature



Drain-source on resistance vs temperature



Source-drain diode forward characteristics