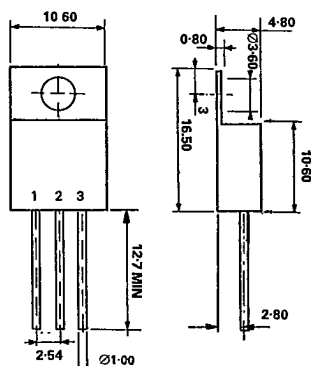


DEC 3 1 1987

SEMELAB**NEW PRODUCT****BUZ 50A-220M**
BUZ 50B-220M**MOS POWER N-CHANNEL
ENHANCEMENT MODE
TO 220 METAL****MECHANICAL DATA**

Dimensions in mm



PIN 1 - Gate PIN 2 - Drain PIN 3 - Source

FEATURES

- HERMETIC TO 220 METAL PACKAGE
- HIGH RELIABILITY
- ISOLATED OPTION
- MILITARY OPTION
- SCREENING OPTIONS
- POWER LINEAR & SWITCHING APPLICATIONS

TO 220M. Metal case. Drain connected to case.
TO 220-ISO. Metal case. All leads isolated from case.

ABSOLUTE MAXIMUM RATINGS ($T_{CASE} = 25^{\circ}C$ unless otherwise stated)

		BUZ 50A	BUZ 50B
V_{DS}	Drain source voltage	1000V	1000V
V_{GS}	Gate source voltage	$\pm 20V$	$\pm 20V$
I_D	Drain current continuous	2.5A	2A
I_{DM}	Drain current max. (pulsed)*	7.5A	6A
P_D	Power dissipation at $T_{CASE} \leq 75^{\circ}C$	75W	
T_J	Junction temperature	200°C	
T_{stg}	Storage temperature	-65 to 200°C	

* Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$

SEMELAB LTD

BUZ 50A-220M
BUZ 50B-220M

SEMELAB

T-39-11

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

Parameter	Test Conditions	Min.	Typ.	Max	Unit
$V_{(BR)DSS}$ Drain source breakdown voltage	$(V_{GS} = 0, I_D = 5.0\text{mA})$	1000			Vdc
I_{DSS} Zero gate voltage drain current	$(V_{DS} = 0.85 \text{ Rated } V_{DSS}, V_{GS} = 0)$ $T_J = 100^{\circ}\text{C}$		0.25		mAdc
I_{GSS} Gate-Body leakage current	$(V_{GS} = 20 \text{ Vdc}, V_{DS} = 0)$		2.5		nAdc
$V_{GS(th)}$ Gate threshold voltage*	$I_D = 1.0\text{mA}, V_{DS} = V_{GS}$ $T_J = 100^{\circ}\text{C}$	2.0	4.5		Vdc
$V_{DS(on)}$ Drain source on-voltage* ($V_{GS} = 10\text{V}$)	$(I_D = 0.5 \text{ Adc})$ $(I_D = 1.0 \text{ Adc})$ $(I_D = 0.5 \text{ Adc}, T_J = 100^{\circ}\text{C})$	1.5	4.0		Vdc
$r_{DS(on)}$ Static drain-source on-resistance*	$(V_{GS} = 10\text{Vdc}, I_D = 0.5 \text{ Adc})$			10	Ohms
g_{fs} Forward transconductance*	$(V_{DS} = 15\text{V}, I_D = 0.5 \text{ A})$	0.5			mhos
FBSOA Forward biased safe operating area		see fig.	7,8		
SSOA Switching safe operating area		see fig.	9		
C_{iss} Input capacitance			1200		pF
C_{oss} Output capacitance	$(V_{DS} = 25\text{V}, V_{GS} = 0, f = 1.0 \text{ MHz})$		300		pF
C_{rss} Reverse transfer capacitance			80		pF
$t_{d(on)}$ Turn-on delay time*			50		ns
t_r Rise time*	$(V_{DS} = 125\text{V}, I_D = 0.5 \text{ A})$		150		ns
$t_{d(off)}$ Turn-off delay time*	$R_{gen} = 50\text{ohms}, T_J = 100^{\circ}\text{C}$		200		ns
t_f Fall time*			100		ns
V_{SD} Forward on-voltage*	$I_S = 1.0 \text{ A}$		1.0		Vdc
t_{on} Forward turn-on time*	$V_{GS} = 0$		250		ns
t_{rr} Reverse recovery time*			420		ns

* Pulsed: pulse duration = $300\mu\text{s}$, duty cycle $\leq 2\%$

THERMAL DATA

$R_{THJ-CASE}$	Thermal resistance junction-case	Max. 1.67°C/W
R_{THJ-A}	Thermal resistance junction-ambient	Max. 75°C/W

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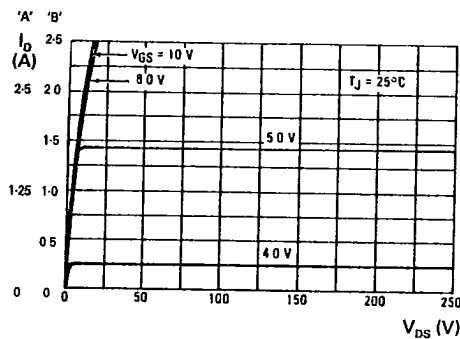
SEMELAB**BUZ 50A-220M
BUZ 50B-220M**

Fig. 1 Output characteristics

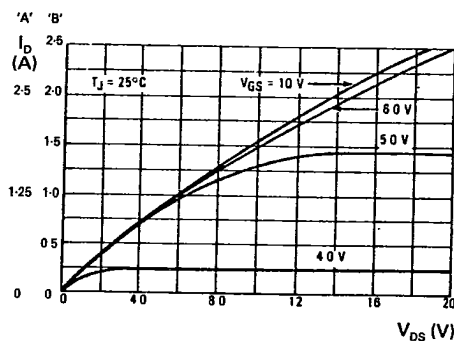


Fig. 2 On-Region characteristics

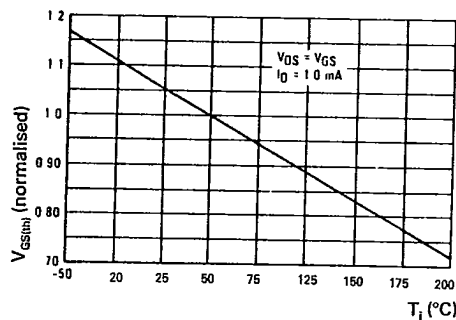


Fig. 3 Gate threshold voltage variation with temperature

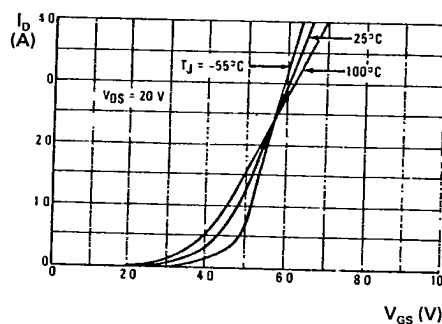


Fig. 4 Transfer characteristics

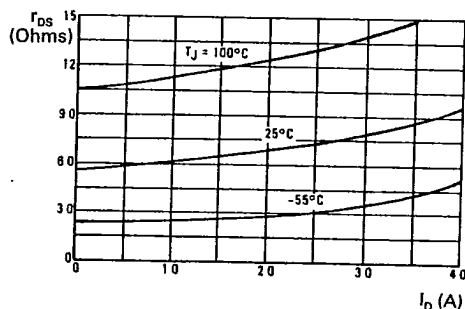


Fig. 5 On-Resistance versus Drain Current

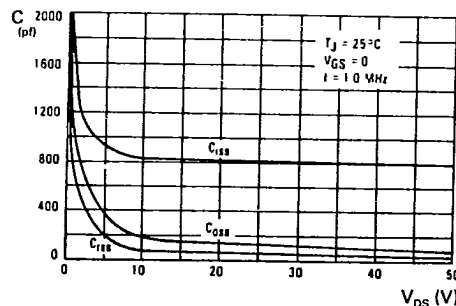


Fig. 6 Capacitance variation

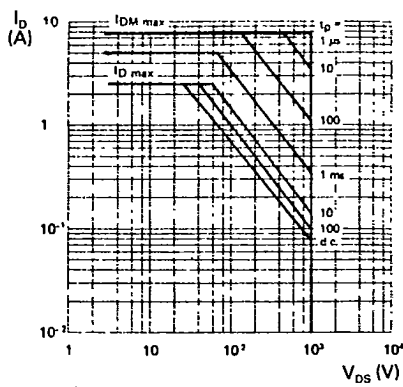


Fig. 7 Safe operating area BUZ 50A

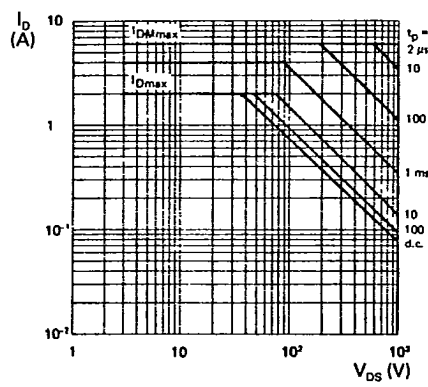


Fig. 8 Safe operating area BUZ 50B

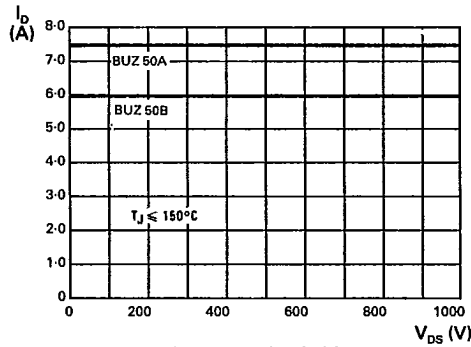
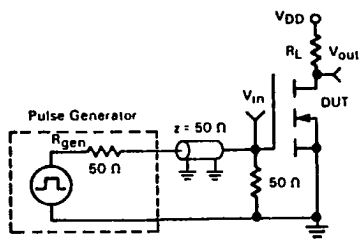
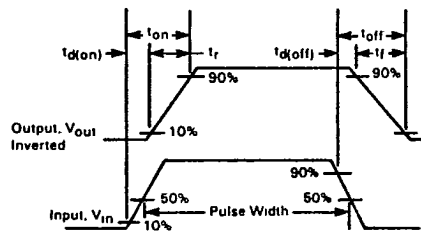


Fig. 9 Maximum rated switching operating area



Switching test circuit



Switching waveforms

RESISTIVE SWITCHING