

PowerMOS transistor

BUK445-60A/B

STATIC CHARACTERISTICS

 $T_{hs} = 25\text{ °C}$ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$V_{(BR)DSS}$	Drain-source breakdown voltage	$V_{GS} = 0\text{ V}; I_D = 0.25\text{ mA}$	60	-	-	V
$V_{GS(TH)}$	Gate threshold voltage	$V_{DS} = V_{GS}; I_D = 1\text{ mA}$	2.1	3.0	4.0	V
I_{DSS}	Zero gate voltage drain current	$V_{DS} = 60\text{ V}; V_{GS} = 0\text{ V}; T_J = 25\text{ °C}$	-	1	10	μA
I_{DSS}	Zero gate voltage drain current	$V_{DS} = 60\text{ V}; V_{GS} = 0\text{ V}; T_J = 125\text{ °C}$	-	0.1	1.0	mA
I_{GSS}	Gate source leakage current	$V_{GS} = \pm 30\text{ V}; V_{DS} = 0\text{ V}$	-	10	100	nA
$R_{DS(ON)}$	Drain-source on-state resistance	$V_{GS} = 10\text{ V}; I_D = 20\text{ A}$	-	0.03	0.038	Ω
		BUK445-60A	-	0.04	0.045	Ω
		BUK445-60B	-			

DYNAMIC CHARACTERISTICS

 $T_{hs} = 25\text{ °C}$ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
g_{fs}	Forward transconductance	$V_{DS} = 25\text{ V}; I_D = 20\text{ A}$	8	13.5	-	S
C_{iss}	Input capacitance	$V_{GS} = 0\text{ V}; V_{DS} = 25\text{ V}; f = 1\text{ MHz}$	-	1650	2000	pF
C_{oss}	Output capacitance		-	560	750	pF
C_{rss}	Feedback capacitance		-	300	400	pF
t_{don}	Turn-on delay time	$V_{DD} = 30\text{ V}; I_D = 3\text{ A};$	-	25	40	ns
t_r	Turn-on rise time	$V_{GS} = 10\text{ V}; R_{GS} = 50\text{ }\Omega;$	-	60	90	ns
t_{doff}	Turn-off delay time	$R_{gen} = 50\text{ }\Omega$	-	125	160	ns
t_f	Turn-off fall time		-	100	130	ns
L_d	Internal drain inductance	Measured from drain lead 6 mm from package to centre of die	-	4.5	-	nH
L_s	Internal source inductance	Measured from source lead 6 mm from package to source bond pad	-	7.5	-	nH

ISOLATION

 $T_{hs} = 25\text{ °C}$ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_{isol}	Repetitive peak voltage from all three terminals to external heatsink	R.H. $\leq 65\%$; clean and dustfree	-	-	1500	V
C_{isol}	Capacitance from T2 to external heatsink	$f = 1\text{ MHz}$	-	12	-	pF

REVERSE DIODE LIMITING VALUES AND CHARACTERISTICS

 $T_{hs} = 25\text{ °C}$ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{DR}	Continuous reverse drain current	-	-	-	21	A
I_{DRM}	Pulsed reverse drain current	-	-	-	84	A
V_{SD}	Diode forward voltage	$I_F = 21\text{ A}; V_{GS} = 0\text{ V}$	-	1.4	1.8	V
t_{rr}	Reverse recovery time	$I_F = 21\text{ A}; -di_F/dt = 100\text{ A}/\mu\text{s};$	-	60	-	ns
Q_{rr}	Reverse recovery charge	$V_{GS} = 0\text{ V}; V_R = 30\text{ V}$	-	0.25	-	μC

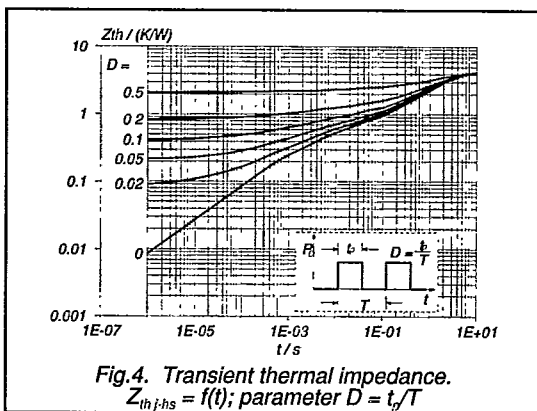
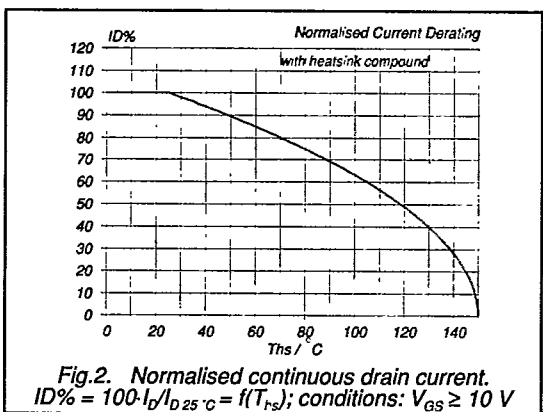
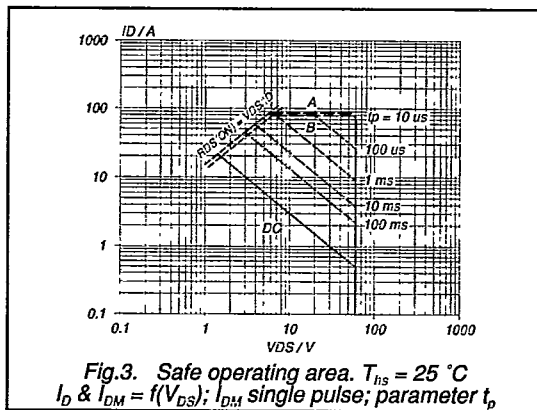
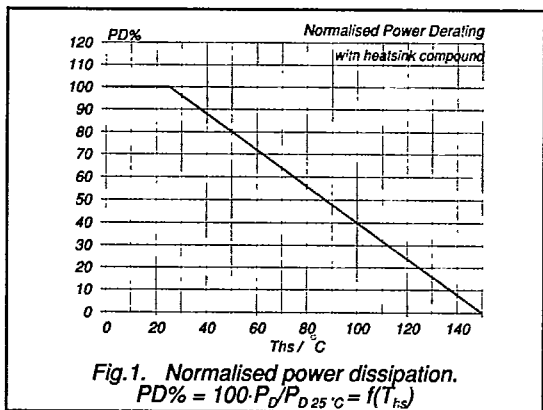
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AVALANCHE LIMITING VALUE

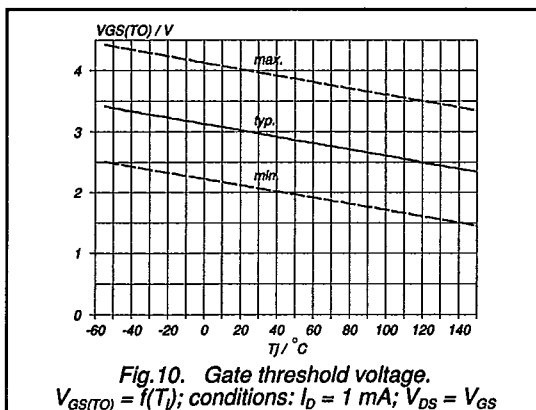
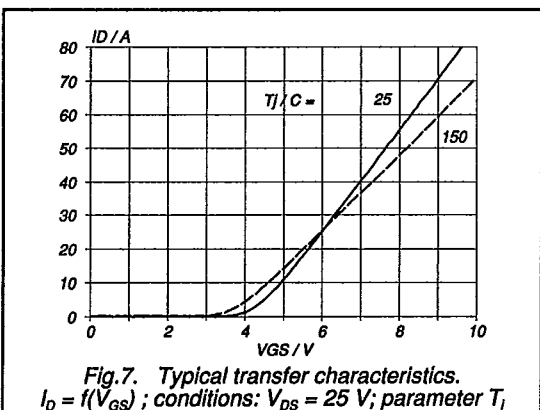
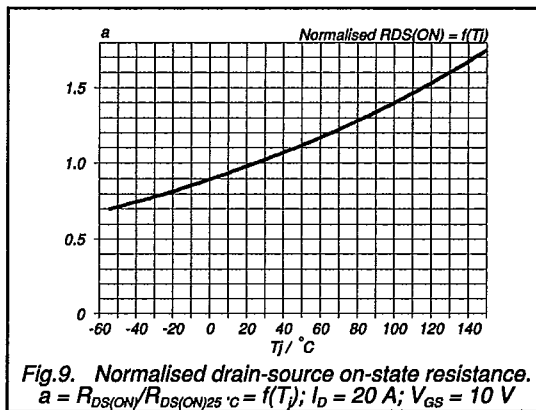
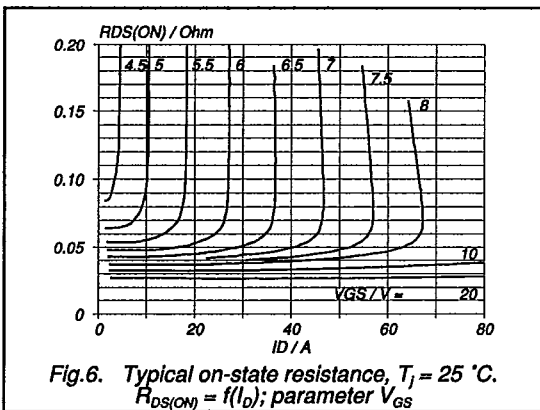
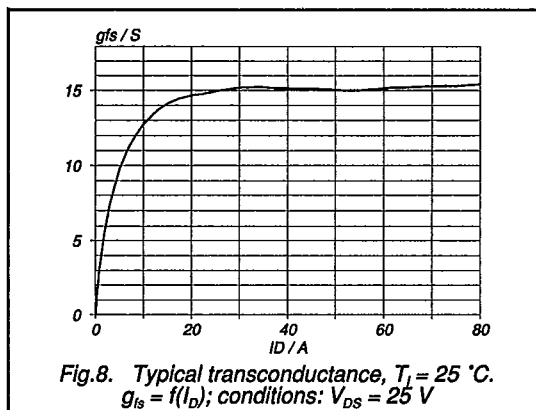
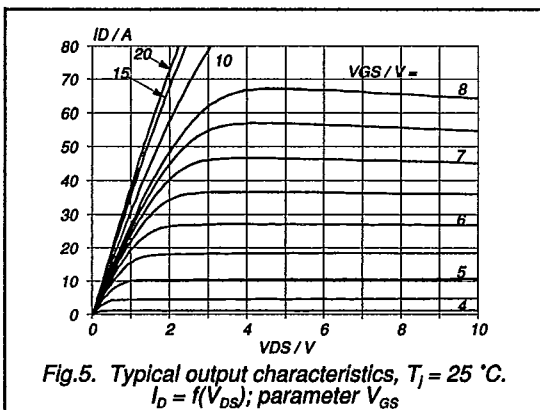
$T_{hs} = 25\text{ }^{\circ}\text{C}$ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
W_{DSS}	Drain-source non-repetitive unclamped inductive turn-off energy	$I_D = 41\text{ A}; V_{DD} \leq 25\text{ V}; V_{GS} = 10\text{ V}; R_{GS} = 50\text{ }\Omega$	-	-	100	mJ



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