

PowerMOS transistor

BUK475-100A/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	$V_{GS} = 0\text{ V}; I_D = 0.25\text{ mA}$	100	-	-	V
$V_{GS(TO)}$	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	$V_{DS} = 100\text{ V}; V_{GS} = 0\text{ V}; T_j = 25\text{ °C}$	-	1	10	μA
I_{DSS}	Zero gate voltage drain current	$V_{DS} = 100\text{ V}; V_{GS} = 0\text{ V}; T_j = 125\text{ °C}$	-	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	$V_{GS} = 10\text{ V}; I_D = 13\text{ A}$	-	0.07	0.08	Ω
		BUK475-100A	-	0.08	0.1	Ω
		BUK475-100B	-			

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
g_{fs}	Forward transconductance	$V_{DS} = 25\text{ V}; I_D = 13\text{ A}$	7.0	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		-	350	500	pF
C_{rss}	Feedback capacitance		-	100	150	pF
t_{don}	Turn-on delay time	$V_{DD} = 30\text{ V}; I_D = 3\text{ A};$	-	15	30	ns
t_r	Turn-on rise time	$V_{GS} = 10\text{ V}; R_{GS} = 50\text{ }\Omega;$	-	25	40	ns
t_{doff}	Turn-off delay time	$R_{gen} = 50\text{ }\Omega$	-	100	160	ns
t_f	Turn-off fall time		-	50	80	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 LIMITING VALUE & CHARACTERISTIC $T_{hs} = 25\text{ °C}$ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_{isol}	R.M.S. isolation voltage from all three terminals to external heatsink	$f = 50\text{-}60\text{ Hz};$ sinusoidal waveform; $R.H. \leq 65\%;$ clean and dustfree	-		2500	V
C_{isol}	Capacitance from T2 to external heatsink	$f = 1\text{ MHz}$	-	10	-	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	-	-	-	14	A
I_{DRM}	Pulsed reverse drain current	-	-	-	56	A
V_{SD}	Diode forward voltage	$I_F = 14\text{ A}; V_{GS} = 0\text{ V}$	-	1.3	1.7	V
t_{rr}	Reverse recovery time	$I_F = 14\text{ A}; -di_F/dt = 100\text{ A}/\mu\text{s};$	-	90	-	ns
Q_{rr}	Reverse recovery charge	$V_{GS} = 0\text{ V}; V_R = 30\text{ V}$	-	0.70	-	μC

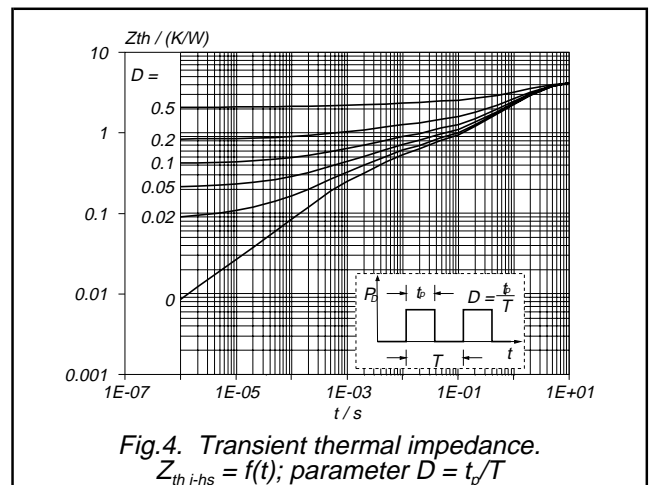
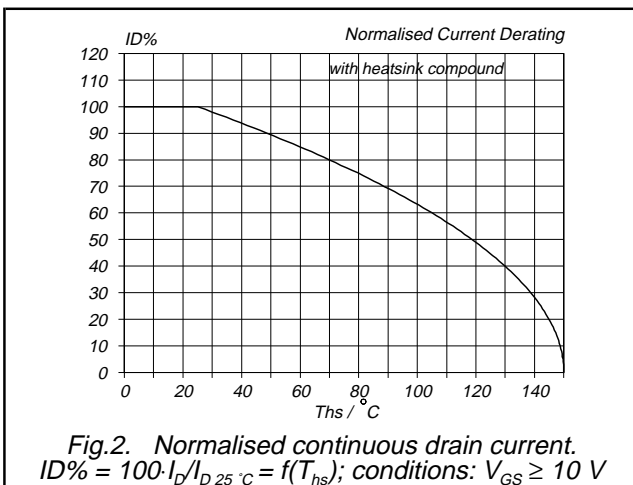
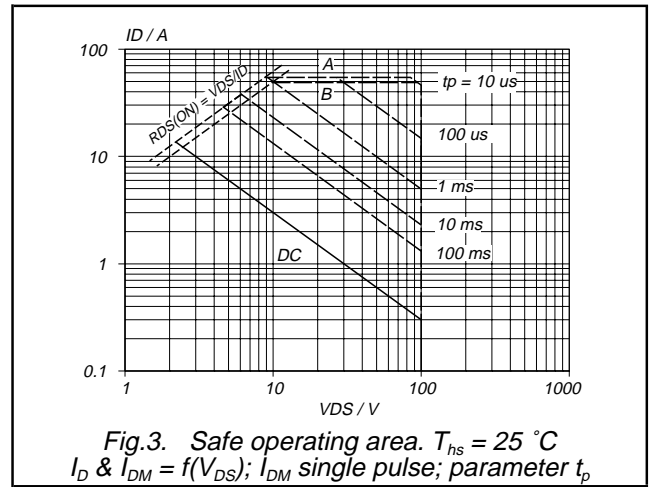
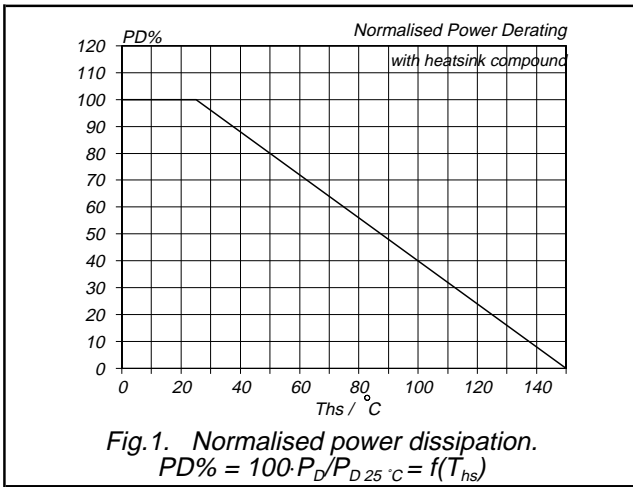
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AVALANCHE LIMITING VALUE

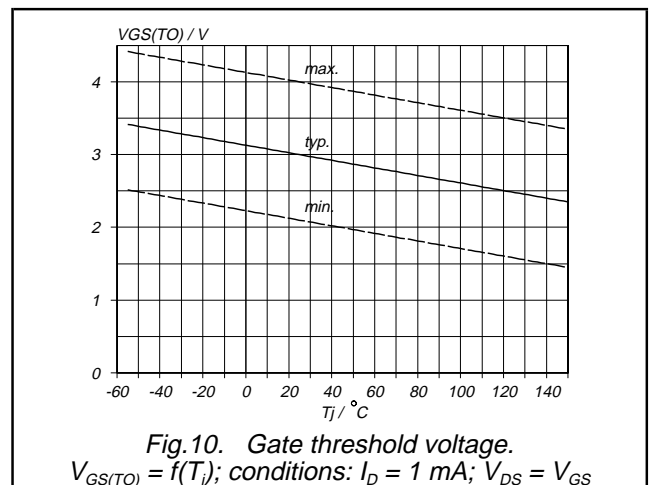
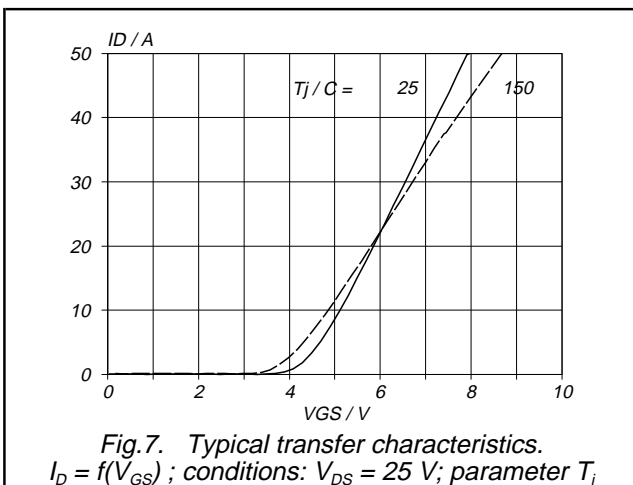
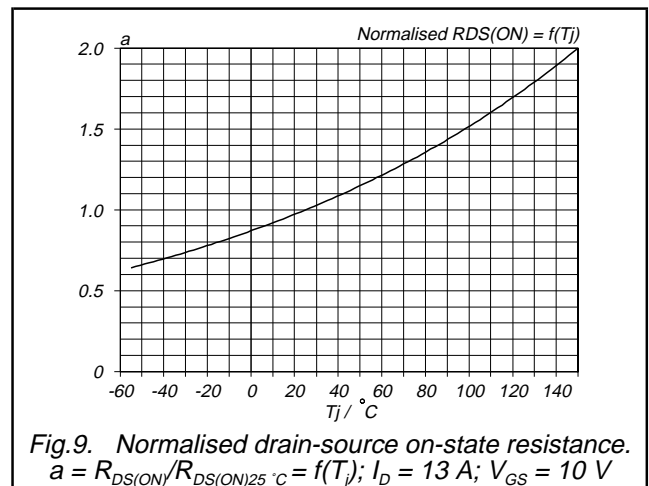
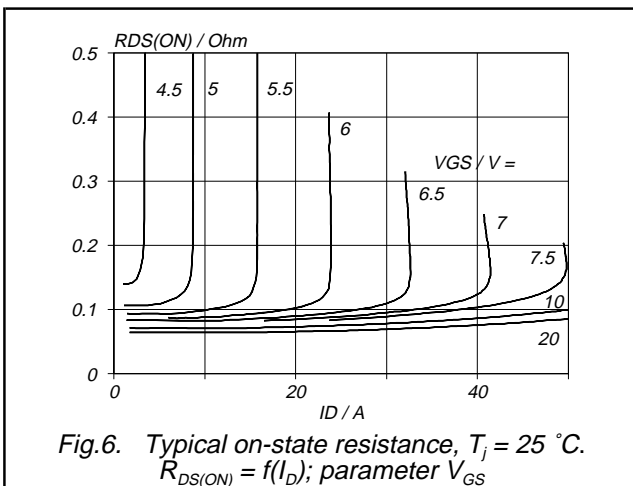
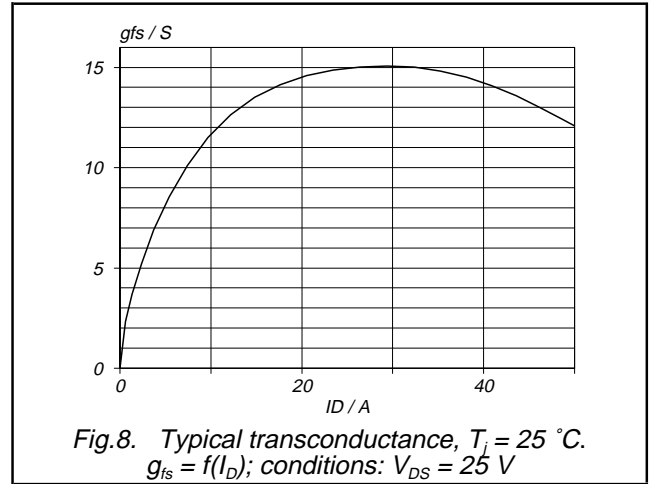
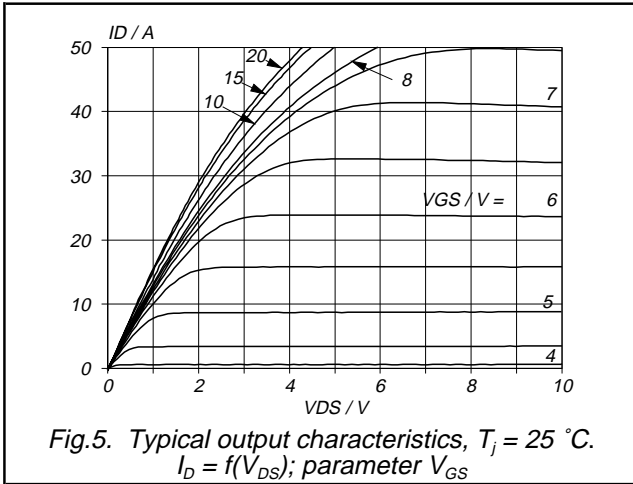
$T_{hs} = 25\text{ }^{\circ}\text{C}$ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
W_{DSS}	Drain-source non-repetitive unclamped inductive turn-off energy	$I_D = 26\text{ A}$; $V_{DD} \leq 50\text{ V}$; $V_{GS} = 10\text{ V}$; $R_{GS} = 50\text{ }\Omega$	-	-	100	mJ



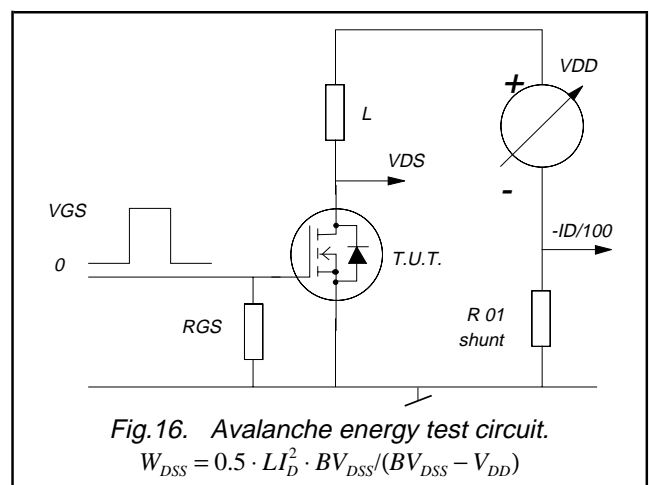
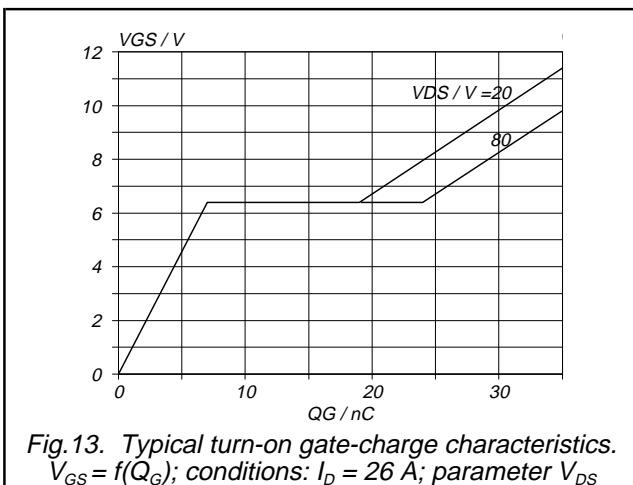
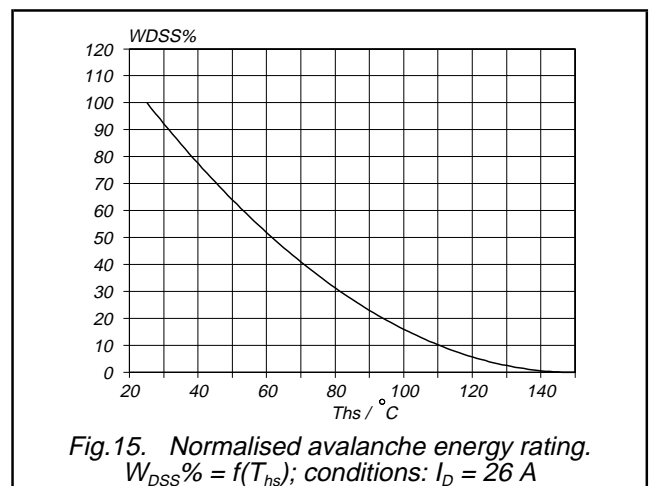
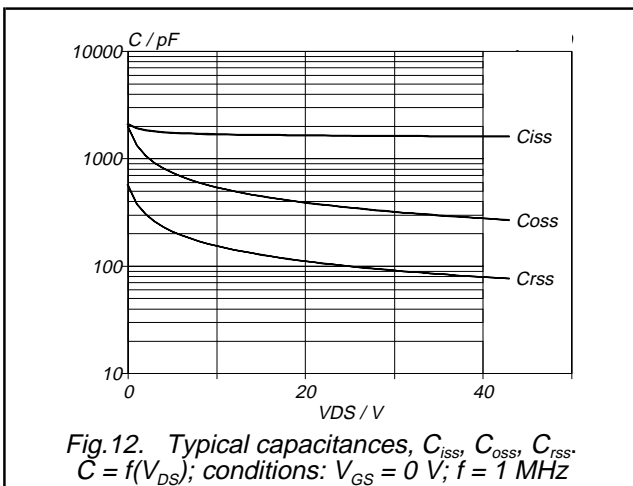
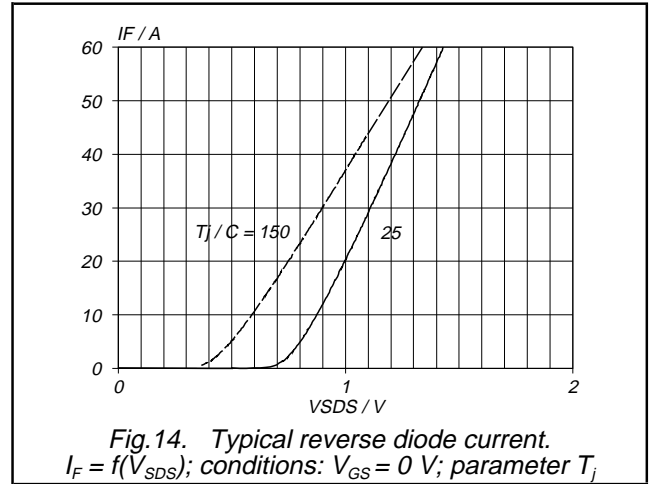
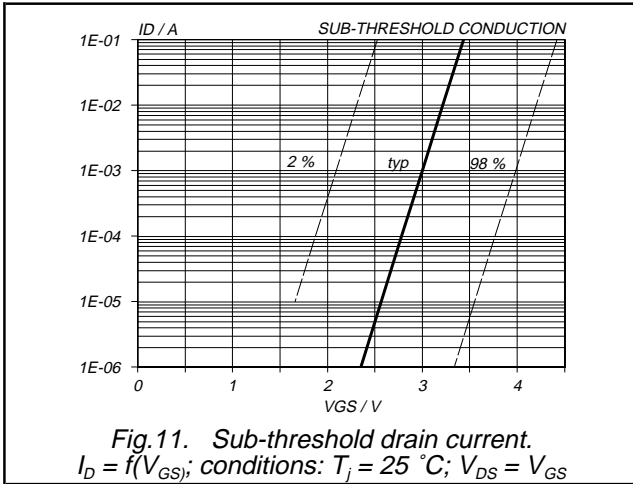
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MECHANICAL DATA

Dimensions in mm

Net Mass: 2 g

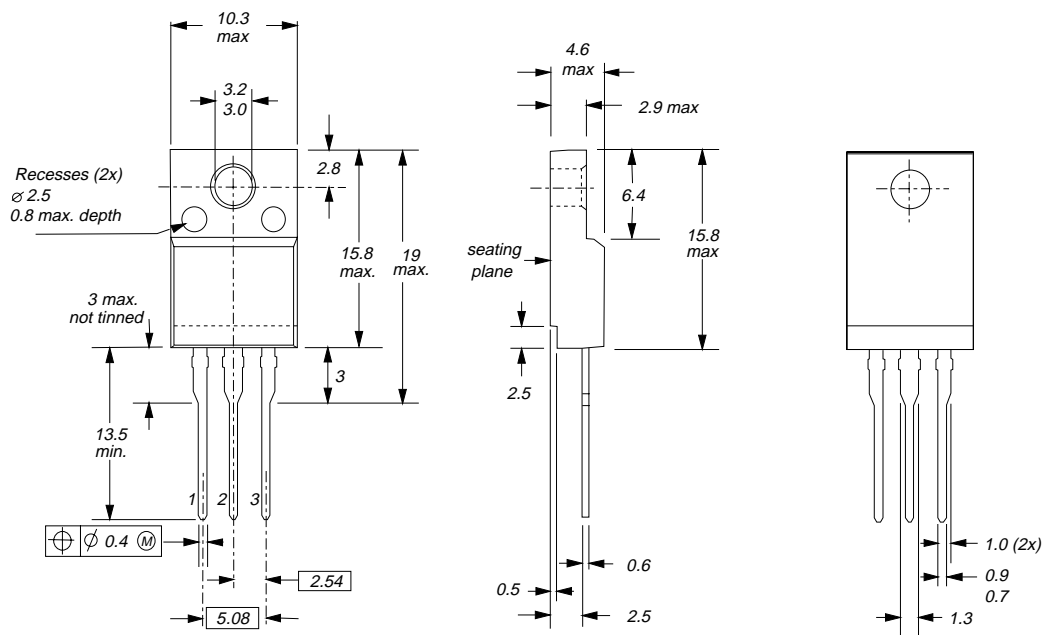


Fig.17. SOT186A; The seating plane is electrically isolated from all terminals.

Notes

1. Observe the general handling precautions for electrostatic-discharge sensitive devices (ESDs) to prevent damage to MOS gate oxide.
2. Refer to mounting instructions for F-pack envelopes.
3. Epoxy meets UL94 V0 at 1/8".

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DEFINITIONS

Data sheet status	
Objective specification	This data sheet contains target or goal specifications for product development.
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.
Product specification	This data sheet contains final product specifications.
Limiting values	
Limiting values are given in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of this specification is not implied. Exposure to limiting values for extended periods may affect device reliability.	
Application information	
Where application information is given, it is advisory and does not form part of the specification.	
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