BS850

P-CHANNEL ENHANCEMENT MODE DMOS TRANSISTOR

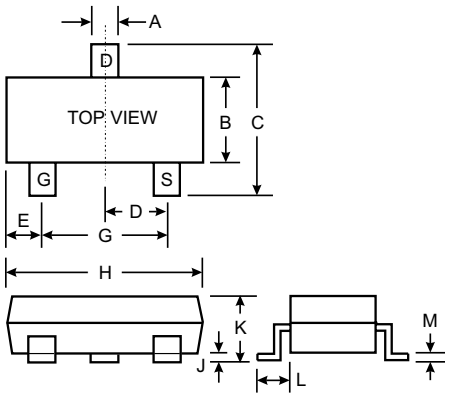
DISCONTINUED, FOR NEW DESIGN USE BSS84

Features

- High Input Impedance
- Fast Switching Speed
- CMOS Logic Compatible Input
- No Thermal Runaway or Secondary Breakdown
- Surface Mount Package Ideally Suited for Automatic Assembly

Mechanical Data

- Case: SOT-23, Plastic
- Terminals: Solderable per MIL-STD-202 Method 208
- Pin Connection: See Diagram
- Marking: S50
- Weight: 0.008 grams (approx.)



SOT-23		
Dim	**Min**	**Max**
A	0.37	0.51
B	1.19	1.40
C	2.10	2.50
D	0.89	1.05
E	0.45	0.61
G	1.78	2.05
H	2.65	3.05
J	0.013	0.15
K	0.89	1.10
L	0.45	0.61
M	0.076	0.178
All Dimensions in mm		

Maximum Ratings @ T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Drain-Source Voltage	$-V_{DSS}$	60	V
Drain-Gate Voltage	$-V_{DGS}$	60	V
Gate-Source Voltage (pulsed)	V_{GS}	±20	V
Drain Current (continuous)	$-I_D$	250	mA
Power Dissipation @T_C = 25°C (Note 1)	P_d	310	mW
Operating and Storage Temperature Range	T_j, T_{STG}	-65 to+150	°C

Inverse Diode @ T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Maximum Forward Current (continuous)	I_F	0.30	A
Forward Voltage Drop (typ.) @ V_{GS} = 0, I_F = 0.12A, T_j = 25°C	V_F	0.85	V

Notes: 1. Device mounted on Ceramic Substrate 0.7mm; 2.5 cm² area.

Electrical Characteristics @ T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Drain-Source Breakdown Voltage	$-V_{(BR)DSS}$	60	90	—	V	$-I_D$ = 100µA, V_{GS} = 0
Gate Threshold Voltage	$V_{GS(th)}$	—	1.0	3.0	V	$-V_{GS} = V_{DS}$, $-I_D$ = 1.0mA
Gate-Body Leakage Current	$-I_{GSS}$	—	—	10	nA	$-V_{GS}$ = 15V, V_{DS} = 0
Drain-Source Cutoff Current	$-I_{DSS}$	—	—	0.5	µA	$-V_{DS}$ = 25V, V_{GS} = 0
Drain-Source ON Resistance	$r_{DS\ (ON)}$	—	3.5	5.0	Ω	$-V_{GS}$ = 10V, $-I_D$ = 0.2A
Thermal Resistance, Junction to Ambient Air	$R_{\theta JA}$	—	—	400	K/W	Note 1
Thermal Resistance Junction to Substrate Backside	$R_{\theta JSB}$	—	—	320	K/W	Note 1
Forward Transconductance	g_{FS}	—	200	—	mm	$-V_{DS}$ = 10V, $-I_D$ = 0.2A, f = 1.0MHz
Input Capacitance	C_{iss}	—	60	—	pF	$-V_{DS}$ = 10V, V_{GS}=0, f = 1.0MHz
Switching Times Turn On Time Turn Off Time	 t_{on} t_{off}	—	 5.0 25	—	ns	$-V_{GS}$ = 10V, $-V_{DS}$ = 10V, R_D = 100Ω

Notes: 1. Device mounted on ceramic substrate 0.7mm; 2.5 cm² area.

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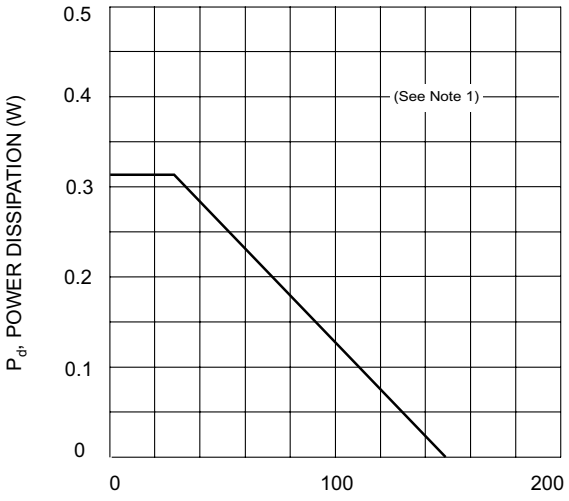

Fig. 1. Power Derating Curve

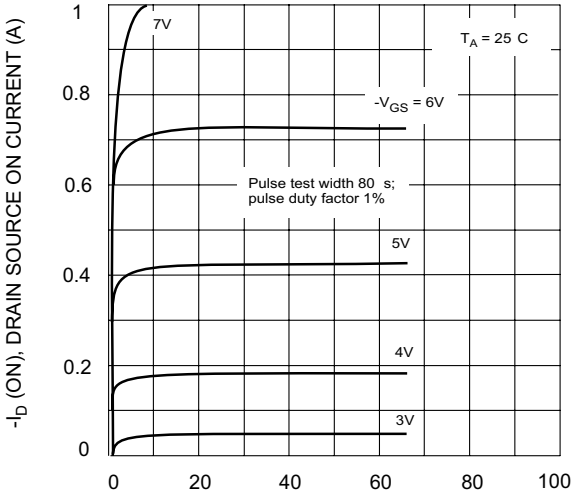

Fig. 2. Output Characteristics

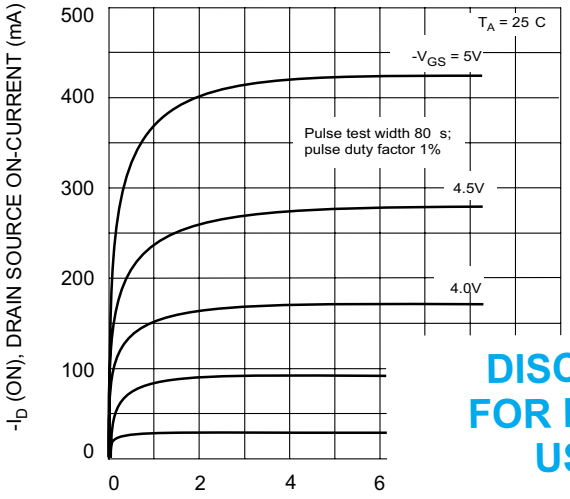

Fig. 3. Saturation Characteristics

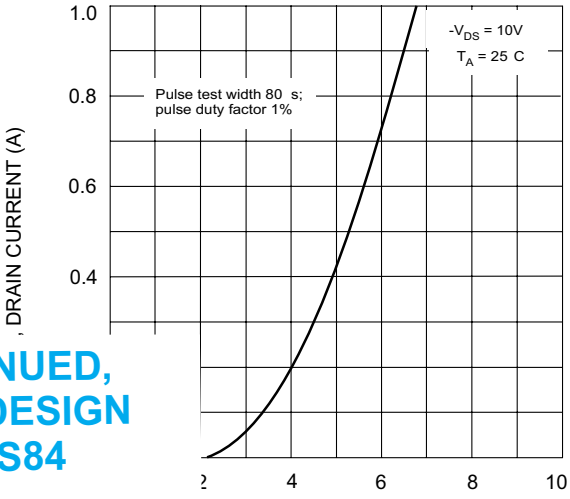

Fig. 4. Drain Current vs Gate-Source Voltage

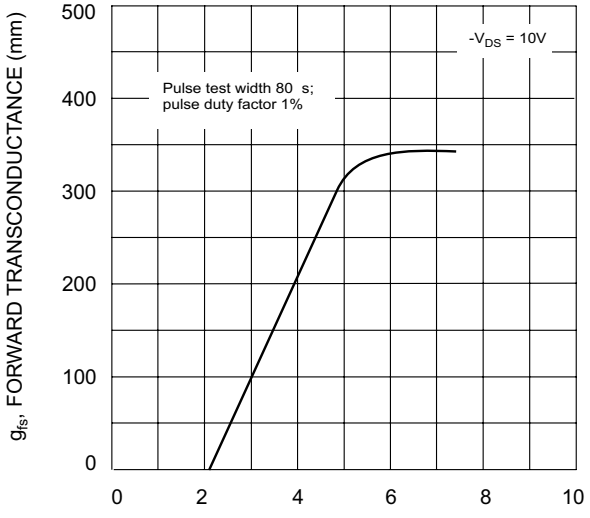

Fig. 5. Transconductance vs Gate-Source Voltage

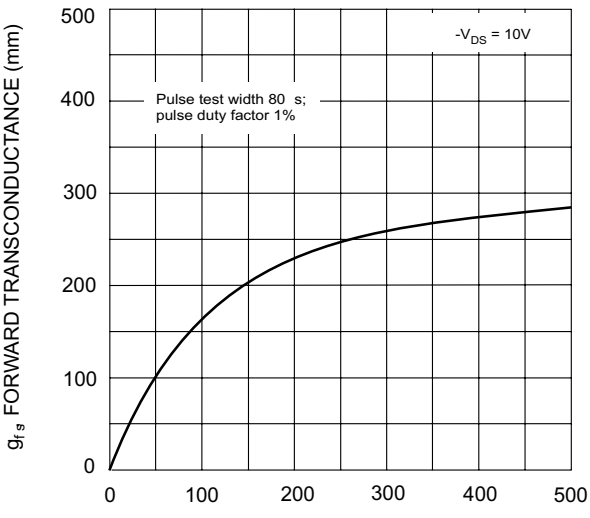

Fig. 6. Transconductance vs. Drain Current