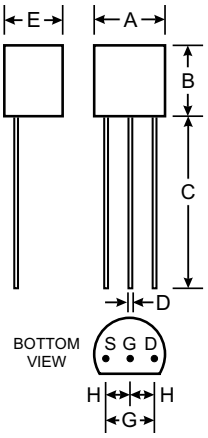
BS107

N–CHANNEL ENHANCEMENT MODE TRANSISTOR

Features

- High Breakdown Voltage
- High Input Impedance
- Fast Switching Speed
- Specially Suited for Telephone Subsets



TO-92		
Dim	**Min**	**Max**
A	4.45	4.70
B	4.46	4.70
C	12.7	—
D	0.41	0.63
E	3.43	3.68
G	2.42	2.67
H	1.14	1.40
All Dimensions in mm		

Mechanical Data

- Case: TO-92 Plastic
- Leads: Solderable per MIL-STD-202, Method 208
- Pin Connections: See Diagram
- Weight: 0.18 grams (approx.)

Maximum Ratings @ T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Drain-Source-Voltage	V_{DSS}	200	V
Drain-Gate-Voltage	V_{DGS}	200	V
Gate-Source-Voltage (pulsed) (Note 2)	V_{GS}	±20	V
Drain-Current (continuous)	I_D	120	mA
Power Dissipation @T_C = 25°C (Note 1)	P_d	830	mW
Operating and Storage Temperature Range	T_j, T_{STG}	-55 to +150	°C

Inverse Diode @ T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Maximum Forward Current (continuous)	I_F	0.5	A
Forward Voltage Drop (typical) @ V_{GS} = 0, I_F = 0.5A, T_j = 25°C	V_F	0.85	V

Electrical Characteristics @ T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	200	230	—	V	I_D = 100μA, V_{GS} = 0
Gate-Body Leakage Current	I_{GSS}	—	—	10	nA	V_{GS} = 15V, V_{DS} = 0
Drain-Cutoff Current	I_{DSS} I_{DSX}	—	—	30 1.0	nA μA	V_{DS} =130V, V_{GS} = 0 V_{DS} = 70V, V_{GS} = 0.2V
Gate-Source Threshold Voltage	$V_{GS(th)}$	—	1.8	3	V	V_{GS} = V_{DS}, I_D = 1.0mA
Drain-Source ON Resistance	$r_{DS(ON)}$	—	18	28	Ω	V_{GS} = 2.8V, I_D = 20 mA
Thermal Resistance, Junction to Ambient Air	$R_{\theta JA}$	—	—	150	K/W	(Note 1)
Input Capacitance Output Capacitance Feedback Capacitance	C_{iss} C_{oss} C_{rss}	—	58 8.0 1.5	—	pF	V_{DS} = 20V, V_{GS} = 0,f =1.0MHz
Turn On Time Turn Off Time	t_{on} t_{off}	—	5.0 15	—	ns	V_{GS} = 10V, V_{DS} = 10V, R_D = 100Ω

Notes: 1. Valid provided that leads are kept at ambient temperature at a distance of 2.0mm from case.
2. Pulse Test: Pulse width = 80μs, duty factor = 1%.

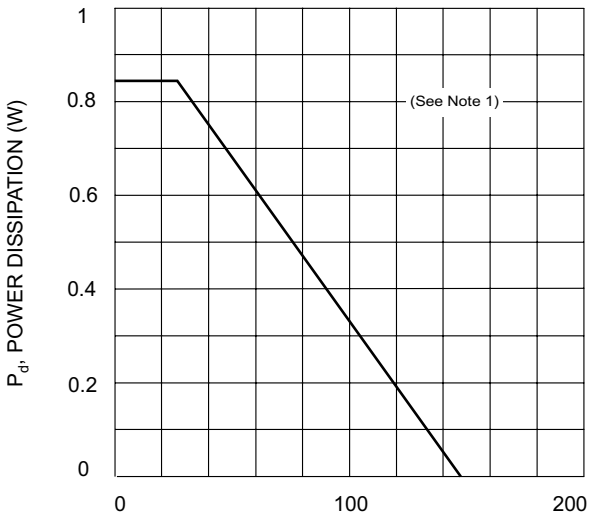


Fig. 1. Power Derating Curve

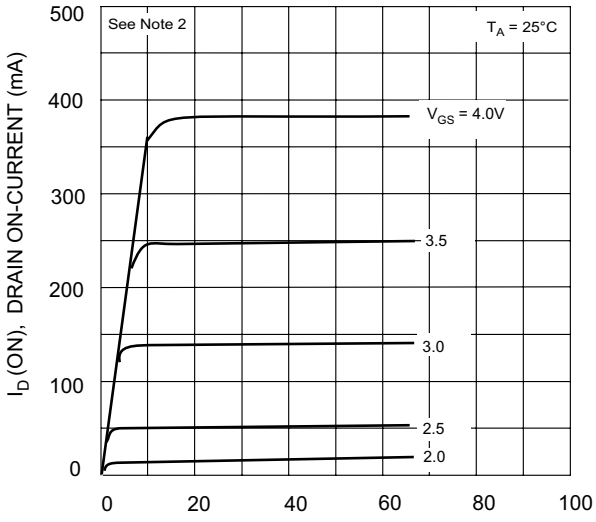


Fig. 2. Output Characteristics

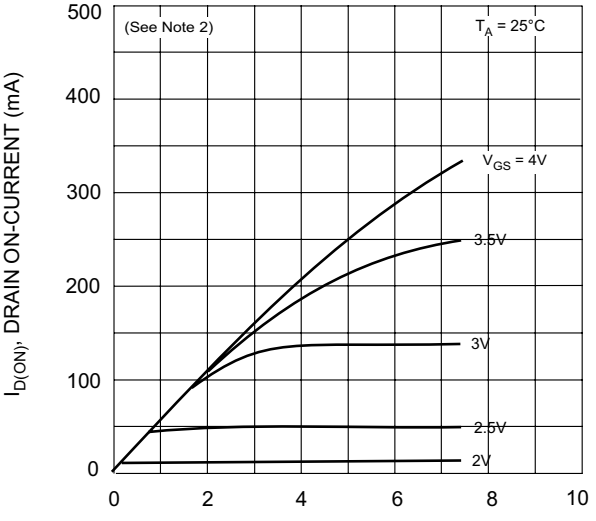


Fig. 3. Saturation Characteristics

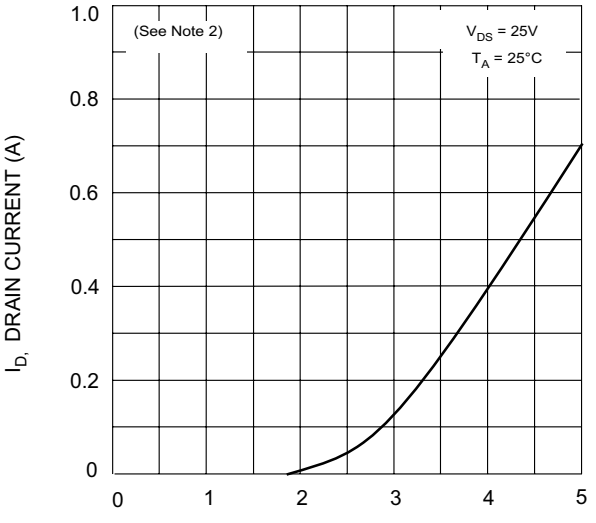


Fig. 4. Drain Current vs Gate-Source Voltage

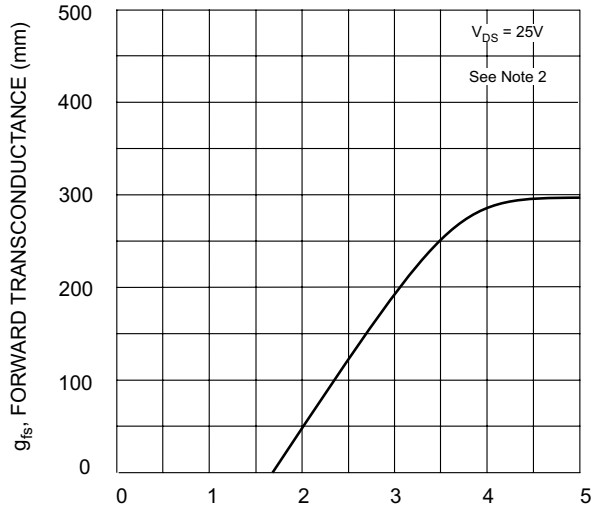


Fig. 5. Transconductance vs Gate-Source Voltage

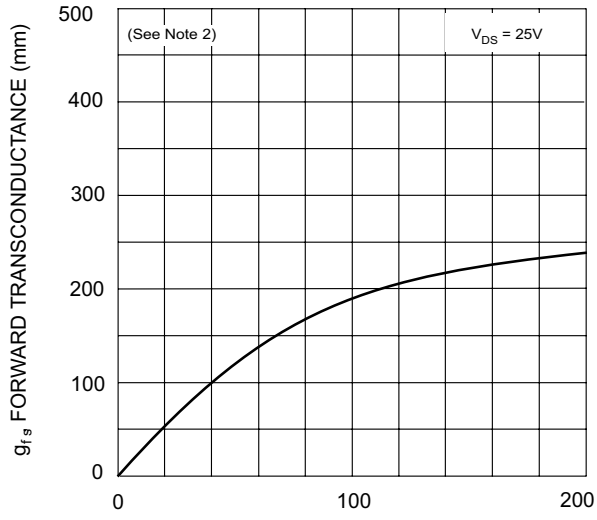


Fig. 6. Transconductance vs. Drain Current