

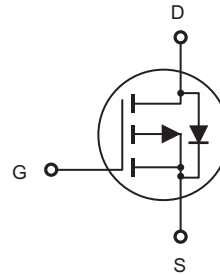
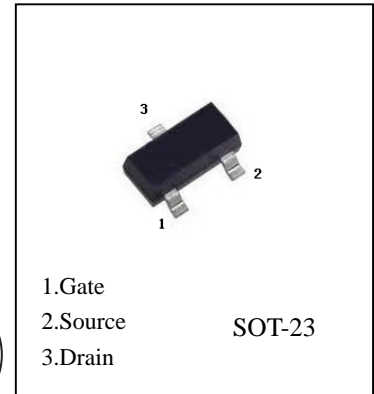
P-CHANNEL ENHANCEMENT MODE FIELD EFFECT TRANSISTOR

FEATURES

- Low On-Resistance
- Low Gate Threshold Voltage
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- **Lead Free/RoHS Compliant (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

BSS84

P-Channel MOSFET


 1.Gate
2.Source
3.Drain

SOT-23

Mechanical Data

Case: SOT-23

Case Material: UL Flammability Classification Rating 94V-0

Moisture sensitivity: Level 1 per J-STD-020C

Terminals: Solderable per MIL-STD-202, Method 208

Lead Free Plating (Matte Tin Finish).

Terminal Connections: See Diagram

Ordering & Date Code Information: See Page 2

Maximum Ratings @ T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Units
Drain-Source Voltage	V _{DSS}	-50	V
Drain-Gate Voltage R _{GS} ≤ 20KΩ	V _{DGR}	-50	V
Gate-Source Voltage	V _{GSS}	±20	V
Drain Current (Note 1)	I _D	-130	mA
Total Power Dissipation (Note 1)	P _d	300	mW
Thermal Resistance, Junction to Ambient	R _{θJA}	417	°C/W
Operating and Storage Temperature Range	T _j , T _{STG}	-55 to +150	°C

Electrical Characteristics @ T_A = 25°C unless otherwise specified

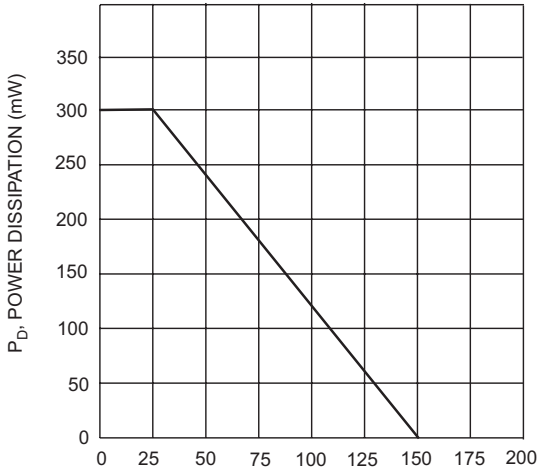
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 2)						
Drain-Source Breakdown Voltage	BV _{DSS}	-50	—	—	V	V _{GS} = 0V, I _D = -250μA
Zero Gate Voltage Drain Current	I _{DSS}	—	—	-15 -60 -100	μA nA	V _{DS} = -50V, V _{GS} = 0V, T _J = 25°C V _{DS} = -50V, V _{GS} = 0V, T _J = 125°C V _{DS} = -25V, V _{GS} = 0V, T _J = 25°C
Gate-Body Leakage	I _{GSS}	—	—	±10	nA	V _{GS} = ±20V, V _{DS} = 0V
ON CHARACTERISTICS (Note 2)						
Gate Threshold Voltage	V _{GS(th)}	-0.8	—	-2.0	V	V _{DS} = V _{GS} , I _D = -1mA
Static Drain-Source On-Resistance	R _{DS(ON)}	—	—	10	Ω	V _{GS} = -5V, I _D = -0.100A
Forward Transconductance	g _{FS}	0.05	—	—	S	V _{DS} = -25V, I _D = -0.1A
DYNAMIC CHARACTERISTICS						
Input Capacitance	C _{iss}	—	—	45	pF	V _{DS} = -25V, V _{GS} = 0V f = 1.0MHz
Output Capacitance	C _{oss}	—	—	25	pF	
Reverse Transfer Capacitance	C _{rss}	—	—	12	pF	
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	t _{D(ON)}	—	10	—	ns	V _{DD} = -30V, I _D = -0.27A, R _{GEN} = 50Ω, V _{GS} = -10V
Turn-Off Delay Time	t _{D(OFF)}	—	18	—	ns	

Note: 1. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch; pad layout as shown on Diodes Inc. suggested pad layout document AP02001, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.

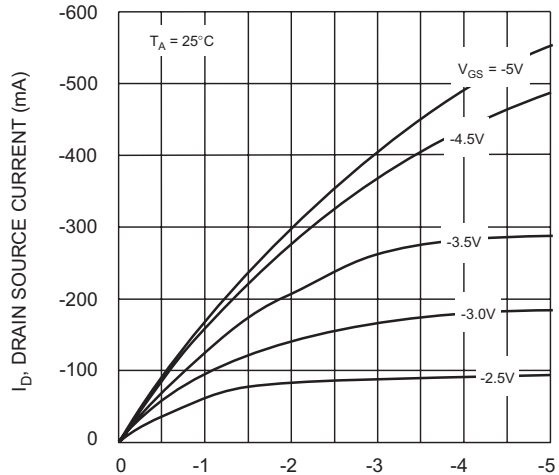
2. Short duration test pulse used to minimize self-heating effect.

3. No purposefully added lead.

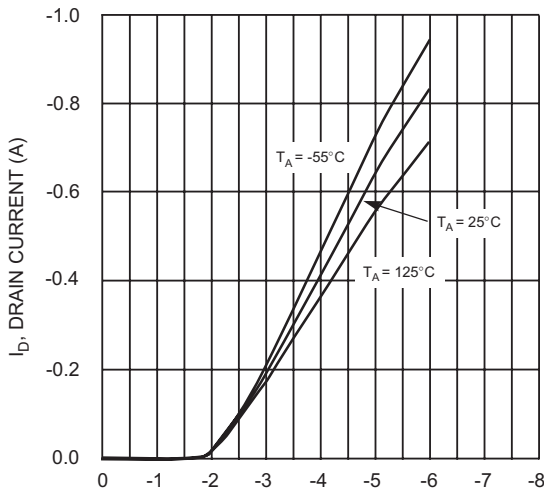
BSS84 Typical Characteristics



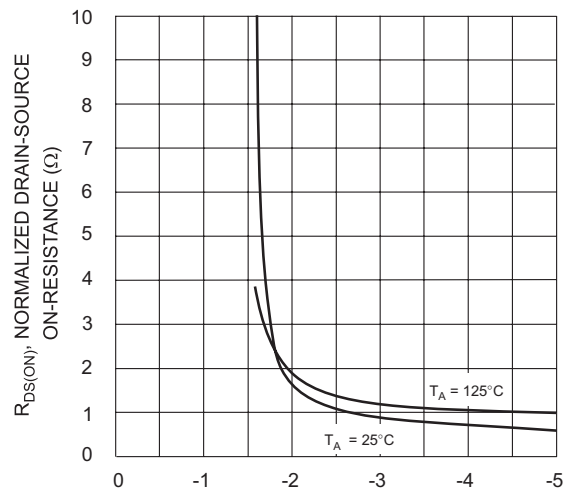
T_A, AMBIENT TEMPERATURE (°C)
Fig. 1, Max Power Dissipation vs Ambient Temperature



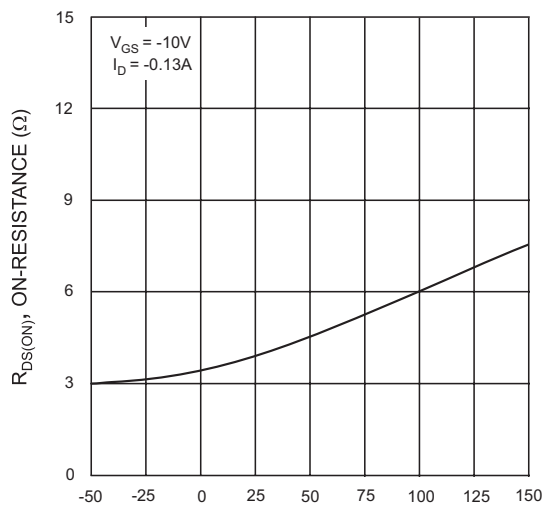
V_{DS}, DRAIN SOURCE (V)
Fig. 2, Drain Source Current vs. Drain Source Voltage



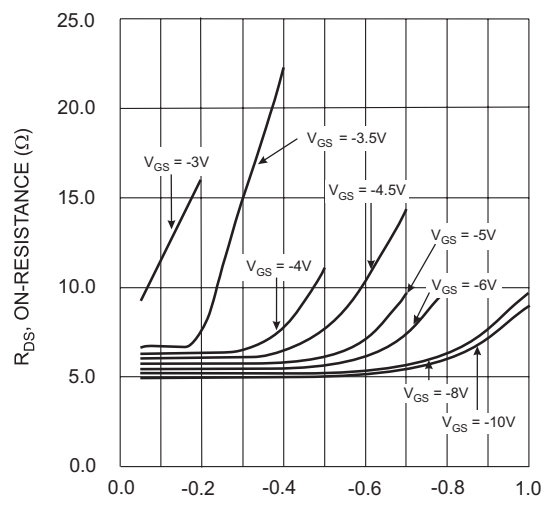
V_{GS}, GATE-TO-SOURCE VOLTAGE (V)
Fig. 3, Drain Current vs. Gate Source Voltage



V_{GS}, GATE TO SOURCE (V)
Fig. 4, On Resistance vs. Gate Source Voltage



T_J, JUNCTION TEMPERATURE (°C)
Fig. 5, On-Resistance vs. Junction Temperature



I_D, DRAIN CURRENT (A)
Fig. 6, On-Resistance vs. Drain Current