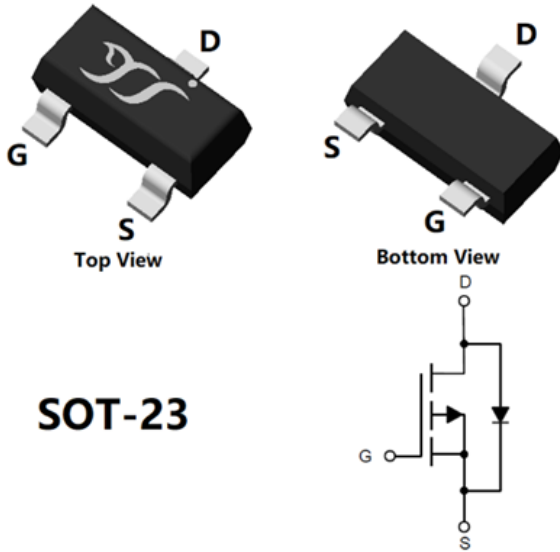


P-Channel Enhancement Mode Field Effect Transistor



SOT-23

Product Summary

- V_{DS} -60 V
- I_D -0.17 A
- $R_{DS(ON)}$ (at $V_{GS}=-10V$) 8 ohm
- $R_{DS(ON)}$ (at $V_{GS}=-4.5V$) 9.9 ohm

General Description

- Trench Power LV MOSFET technology
- Low $R_{DS(ON)}$
- Low Gate Charge
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free

Applications

- Video monitor
- Power management

■ Absolute Maximum Ratings ($T_A=25$ unless otherwise noted)

| Parameter | Symbol | Maximum | Unit |
|---|-----------------|-------------------------|-------|
| Drain-source Voltage | V_{DS} | -60 | V |
| Gate-source Voltage | V_{GS} | 20 | V |
| Drain Current | I_D | $T_A=25$ @ Steady State | -0.17 |
| | | $T_A=70$ @ Steady State | -0.14 |
| Pulsed Drain Current ^A | I_{DM} | -1.2 | A |
| Total Power Dissipation @ $T_A=25$ | P_D | 0.35 | W |
| Thermal Resistance Junction-to-Ambient ^B | $R_{\theta JA}$ | 357 | W |
| Junction and Storage Temperature Range | T_J, T_{STG} | -55 +150 | |

■ Ordering Information (Example)

| PREFERRED P/N | PACKING CODE | Marking | MINIMUM PACKAGE(pcs) | INNER BOX QUANTITY(pcs) | OUTER CARTON QUANTITY(pcs) | DELIVERY MODE |
|---------------|--------------|---------|----------------------|-------------------------|----------------------------|---------------|
| BSS84 | F2 | B84. | 3000 | 30000 | 120000 | 7" reel |



BSS84

■ Electrical Characteristics (T_J=25 unless otherwise noted)

| Parameter | Symbol | Conditions | Min | Typ | Max | Units |
|---------------------------------------|---------------------|--|------|------|-------|-------|
| Static Parameter | | | | | | |
| Drain-Source Breakdown Voltage | BV _{DSS} | V _{GS} = 0V, I _D =-250μA | -60 | | | V |
| Zero Gate Voltage Drain Current | I _{DSS} | V _{DS} =-60V, V _{GS} =0V | | | -1 | μA |
| Gate-Body Leakage Current | I _{GSS} | V _{GS} = 20V, V _{DS} =0V | | | 100 | nA |
| Gate Threshold Voltage | V _{GS(th)} | V _{DS} = V _{GS} , I _D =-250μA | -0.9 | -1.4 | -2.0 | V |
| Static Drain-Source On-Resistance | R _{DS(on)} | V _{GS} = -10V, I _D =-0.15A | | 3.3 | 8 | Ω |
| | | V _{GS} = -4.5V, I _D =-0.15A | | 3.5 | 9.9 | |
| Diode Forward Voltage | V _{SD} | I _S =-0.17A, V _{GS} =0V | | | -1.2 | V |
| Maximum Body-Diode Continuous Current | I _S | | | | -0.17 | A |
| Dynamic Parameters | | | | | | |
| Input Capacitance | C _{iss} | V _{DS} =-30V, V _{GS} =0V, f=1MHZ | | 43 | | pF |
| Output Capacitance | C _{oss} | | | 2.9 | | |
| Reverse Transfer Capacitance | C _{rss} | | | 1.8 | | |
| Switching Parameters | | | | | | |
| Total Gate Charge | Q _g | V _{GS} =-10V, V _{DS} =-30V, I _D =-0.15 A | | 1.77 | | nC |
| Gate Source Charge | Q _{gs} | | | 0.57 | | |
| Gate Drain Charge | Q _{gd} | | | 0.18 | | |
| Reverse Recovery Charge | Q _{rr} | I _F =-0.15A, di/dt=100A/μs | | 13 | | |
| Reverse Recovery Time | t _{rr} | | | 23 | | |
| Turn-on Delay Time | t _{D(on)} | V _{GS} =-4.5V, V _{DD} =-30V, I _D =-0.15A, R _{GEN} =2.5Ω | | 8.6 | | ns |
| Turn-on Rise Time | t _r | | | 20 | | |
| Turn-off Delay Time | t _{D(off)} | | | 15 | | |
| Turn-off Fall Time | t _f | | | 77 | | |

A. Pulse Test: Pulse Width 10us, Duty cycle 2%.

B. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch.



■ Typical Performance Characteristics

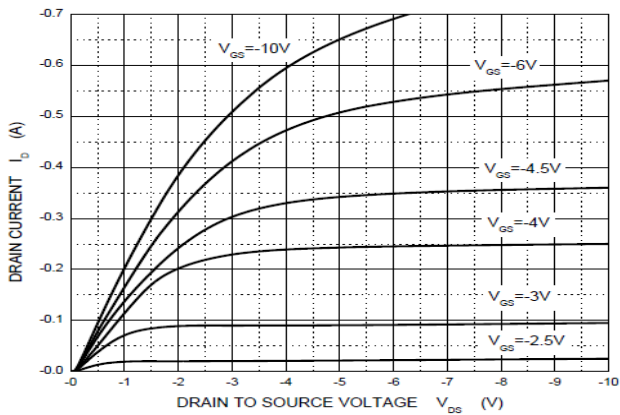


Figure1. Output Characteristics

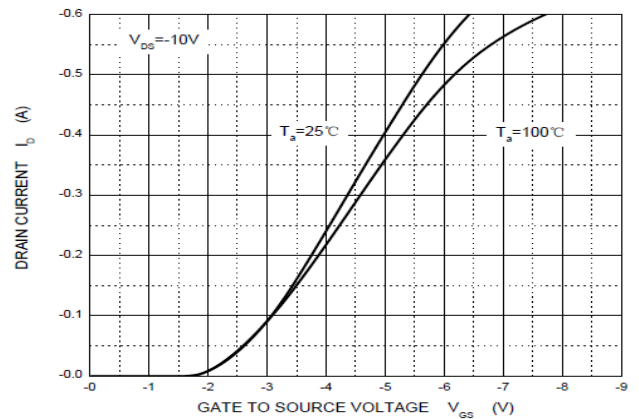


Figure2. Transfer Characteristics

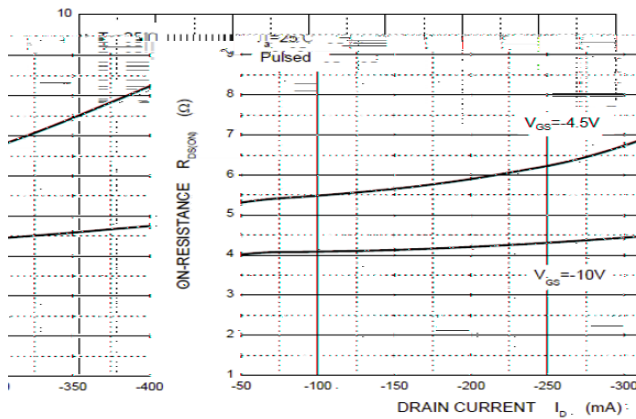


Figure3. Drain-Source on Resistance

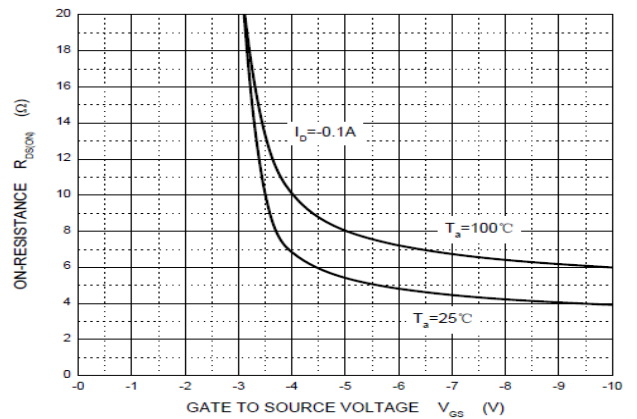


Figure4. Drain-Source on Resistance

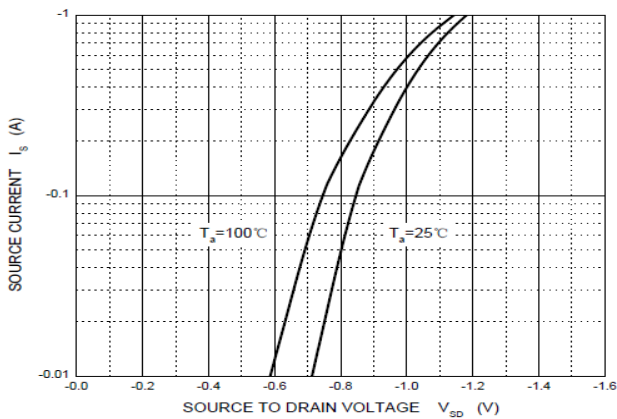


Figure5. Diode Forward Voltage vs. current

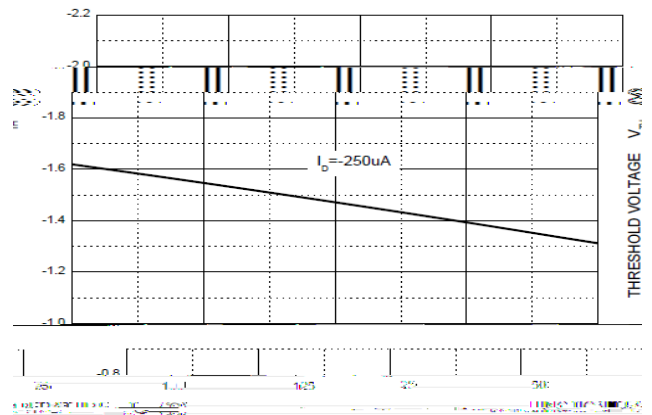


Figure6. Gate Threshold vs. Junction Temperature



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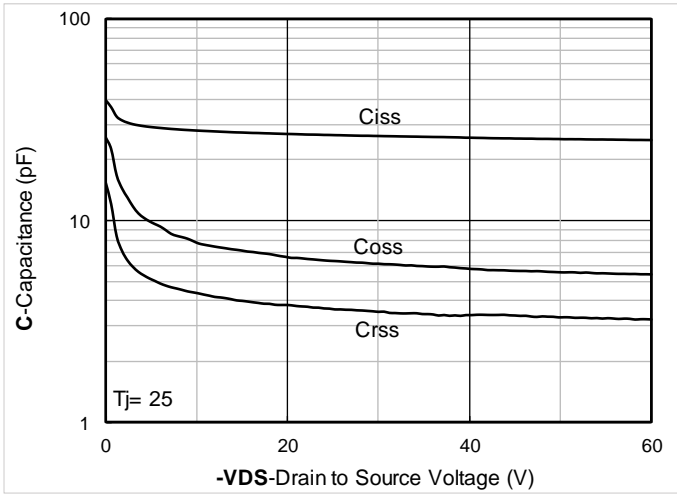


Figure7. Capacitance Characteristics

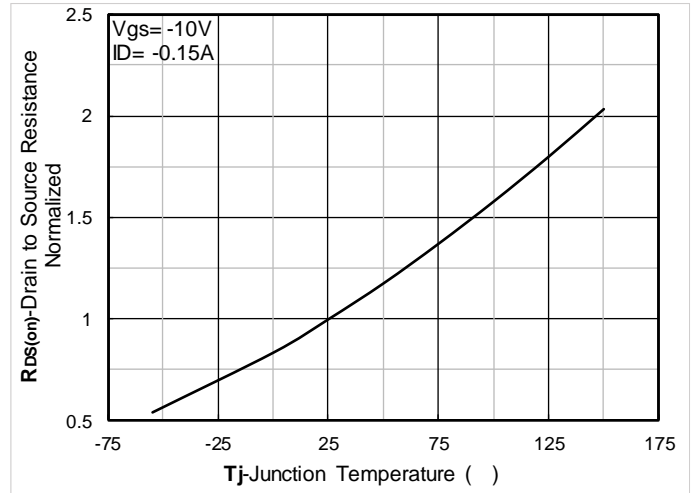
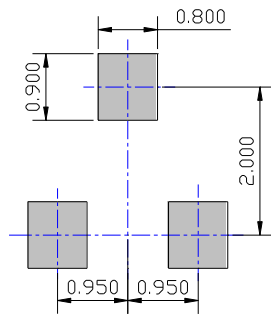
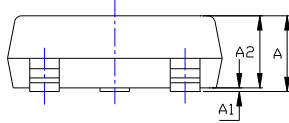
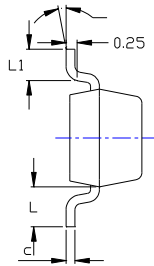
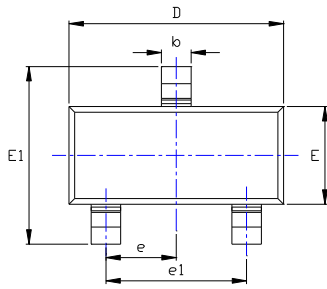


Figure8. Normalized On-Resistance

■ SOT-23 Package information



UNIT mm

| SYMBOL | DIMENSIONS | | | |
|--------|------------|-------|------------|-------|
| | INCHES | | Millimeter | |
| | MIN. | MAX. | MIN. | MAX. |
| A | 0.035 | 0.045 | 0.900 | 1.150 |
| A1 | 0.000 | 0.004 | 0.000 | 0.100 |
| A2 | 0.035 | 0.041 | 0.900 | 1.050 |
| b | 0.012 | 0.020 | 0.300 | 0.500 |
| c | 0.004 | 0.008 | 0.100 | 0.200 |
| D | 0.110 | 0.118 | 2.800 | 3.000 |
| E | 0.047 | 0.055 | 1.200 | 1.400 |
| E1 | 0.089 | 0.100 | 2.250 | 2.550 |
| e | 0.037TYP | | 0.950TYP | |
| e1 | 0.071 | 0.079 | 1.800 | 2.000 |
| L | 0.022REF | | 0.550REF | |
| L1 | 0.012 | 0.020 | 0.300 | 0.500 |
| | 0° | 8° | 0° | 8° |

NOTE:

1.PACKAGE BODY SIZES EXCLUDE MOLD FLASH AND GATE BURRS.

2.TOLERANCE 0.1mm UNLESS OTHERWISE SPECIFIED.

3.THE PAD LAYOUT IS FOR REFERENCE PURPOSES ONLY.



BSS84

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