

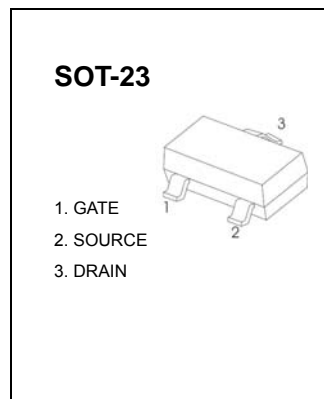
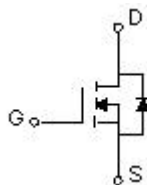
SOT-23 Plastic-Encapsulate MOSFETS

FEATURE

- TrenchFET Power MOSFET
- Low $R_{DS(ON)}$
- Surface Mount Package

APPLICATION

- DC/DC Converters
- Load Switch
- LED Backlighting in LCD TVs



MARKING: S24

Maximum ratings ($T_a=25^{\circ}\text{C}$ unless otherwise noted)

| Parameter | Symbol | Value | Unit |
|--|-----------------|----------|----------------------|
| Drain-Source Voltage | V_{DS} | 100 | V |
| Gate-Source Voltage | V_{GS} | ± 20 | V |
| Continuous Drain Current | I_D | 2 | A |
| Pulsed Drain Current | I_{DM}^* | 8 | A |
| Thermal Resistance from Junction to Ambient | $R_{\theta JA}$ | 357 | $^{\circ}\text{C/W}$ |
| Junction Temperature | T_J | 150 | $^{\circ}\text{C}$ |
| Storage Temperature | T_{STG} | -55~+150 | $^{\circ}\text{C}$ |
| Lead Temperature for Soldering Purposes(1/8" from case for 10 s) | T_L | 260 | $^{\circ}\text{C}$ |

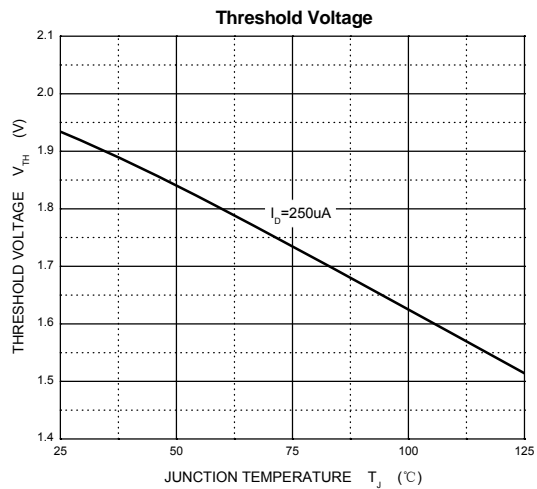
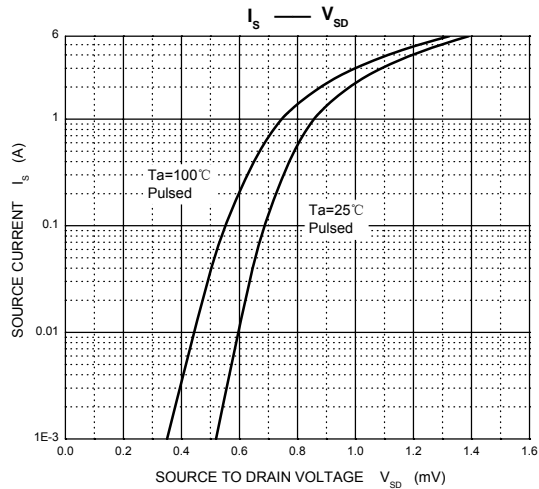
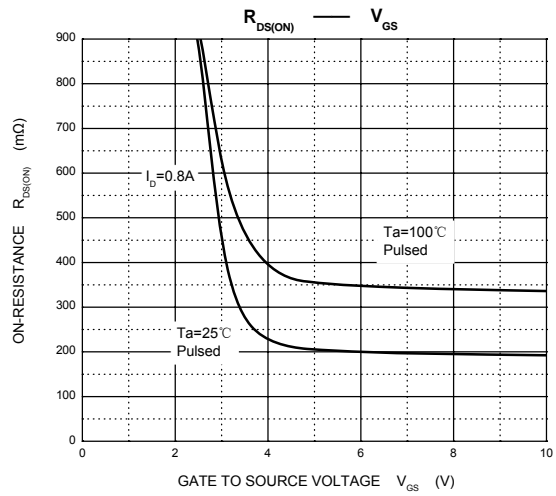
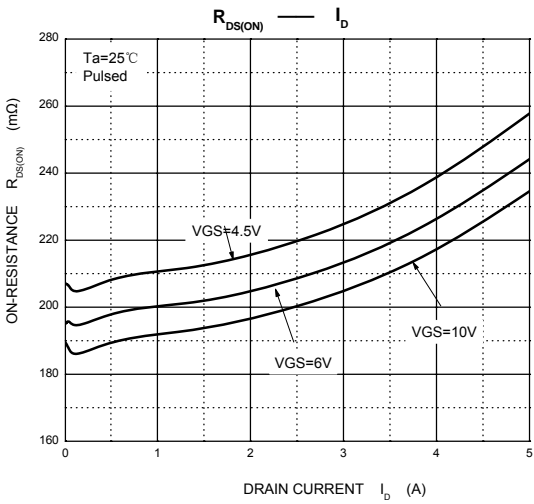
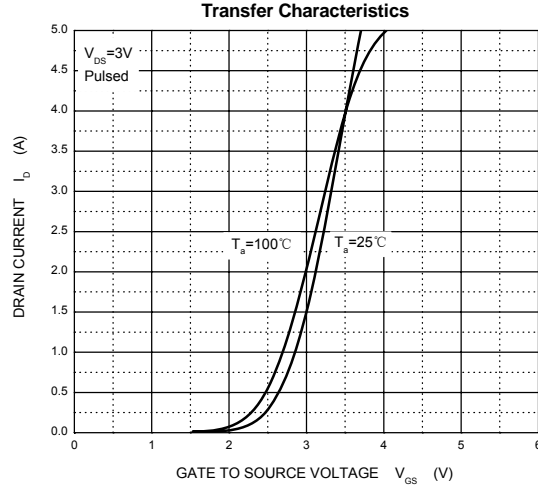
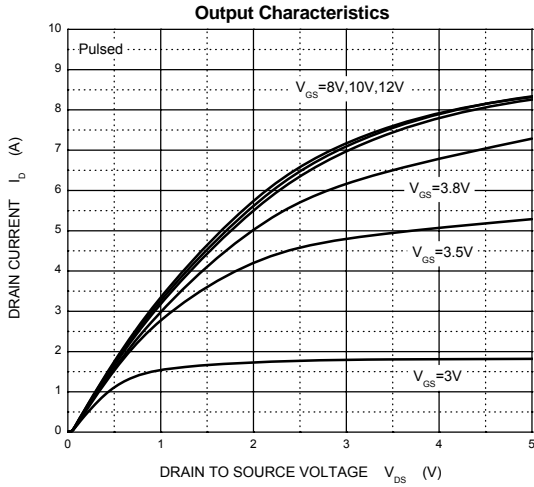
*Repetitive rating: Pluse width limited by junction temperature.

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Electrical characteristics (T_a=25°C unless otherwise noted)

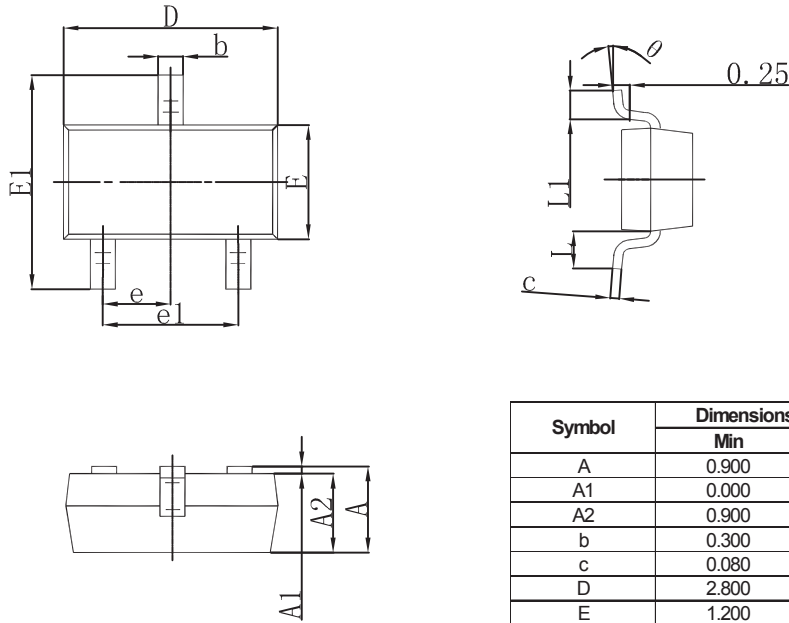
| Parameter | Symbol | Test Condition | Min | Typ | Max | Unit |
|--------------------------------------|----------------------|--|-----|------|------|------|
| STATIC PARAMETERS | | | | | | |
| Drain-source breakdown voltage | V _{(BR)DSS} | V _{GS} = 0V, I _D = 250μA | 100 | | | V |
| Zero gate voltage drain current | I _{DSS} | V _{DS} = 100V, V _{GS} = 0V | | | 1 | μA |
| Gate-body leakage current | I _{GSS} | V _{GS} = ±20V, V _{DS} = 0V | | | ±100 | nA |
| Gate threshold voltage(note 1) | V _{GS(th)} | V _{DS} = V _{GS} , I _D = 250μA | 1.2 | | 2.8 | V |
| Drain-source on-resistance (note 1) | R _{DS(on)} | V _{GS} = 10V, I _D = 1.5A | | | 234 | mΩ |
| | | V _{GS} = 6V, I _D = 1A | | | 267 | mΩ |
| | | V _{GS} = 4.5V, I _D = 0.5A | | | 278 | mΩ |
| Forward tranconductance (note 1) | g _{FS} | V _{DS} = 20V, I _D = 1.5A | | 2 | | S |
| Diode forward voltage (note 1) | V _{SD} | I _S = 1.3A, V _{GS} = 0V | | | 1.2 | V |
| DYNAMIC PARAMETERS (note2) | | | | | | |
| Input Capacitance | C _{iss} | V _{DS} = 50V, V _{GS} = 0V, f = 1MHz | | 190 | | pF |
| Output Capacitance | C _{oss} | | | 22 | | pF |
| Reverse Transfer Capacitance | C _{rss} | | | 13 | | pF |
| Gate Resistance | R _g | F = 1MHz | 0.3 | | 2.8 | Ω |
| SWITCHING PARAMETERS (note 2) | | | | | | |
| Turn-on delay time | t _{d(on)} | V _{DD} = 50V, V _{GEN} = 4.5V R _L = 39Ω, R _G = 1Ω, I _D = 1.3A | | | 45 | ns |
| Turn-on rise time | t _r | | | | 39 | ns |
| Turn-off delay time | t _{d(off)} | | | | 26 | ns |
| Turn-off fall time | t _f | | | | 20 | ns |
| Total Gate Charge | Q _g | V _{DS} = 50V, V _{GS} = 4.5V, I _D = 1.6A | | | 5.8 | nC |
| Gate-Source Charge | Q _{gs} | | | 0.75 | | nC |
| Gate-Drain Charge | Q _{gd} | | | 1.4 | | nC |

- Notes :**
1. Pulse Test : Pulse width ≤ 300μs, duty cycle ≤ 0.5%.
 2. Guaranteed by design, not subject to production testing.



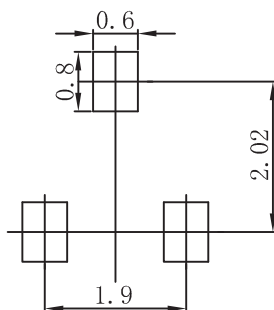
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SOT-23 Package Outline Dimensions



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min | Max | Min | Max |
| A | 0.900 | 1.150 | 0.035 | 0.045 |
| A1 | 0.000 | 0.100 | 0.000 | 0.004 |
| A2 | 0.900 | 1.050 | 0.035 | 0.041 |
| b | 0.300 | 0.500 | 0.012 | 0.020 |
| c | 0.080 | 0.150 | 0.003 | 0.006 |
| D | 2.800 | 3.000 | 0.110 | 0.118 |
| E | 1.200 | 1.400 | 0.047 | 0.055 |
| E1 | 2.250 | 2.550 | 0.089 | 0.100 |
| e | 0.950 TYP | | 0.037 TYP | |
| e1 | 1.800 | 2.000 | 0.071 | 0.079 |
| L | 0.550 REF | | 0.022 REF | |
| L1 | 0.300 | 0.500 | 0.012 | 0.020 |
| θ | 0° | 8° | 0° | 8° |

SOT-23 Suggested Pad Layout



Note:
 1. Controlling dimension: in millimeters.
 2. General tolerance: ± 0.05 mm.
 3. The pad layout is for reference purposes only.