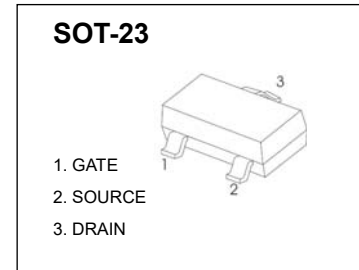


SOT-23 Plastic-Encapsulate MOSFETS

BC2324 N-Channel MOSFET

| $V_{(BR)DSS}$ | $R_{DS(on)MAX}$ | I_D |
|---------------|-----------------|-------|
| 100V | 220mΩ@10V | 2A |
| | 240mΩ@4.5V | |



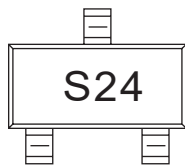
FEATURE

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

APPLICATION

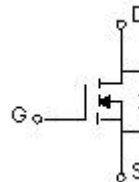
- DC/DC Converters
- Load Switch
- LED Backlighting in LCD TVs

MARKING: S24



S24 = Device code

Equivalent Circuit



ABSOLUTE 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 |
| Maximum Power Dissipation | P_D | 0.35 | W |
| Thermal Resistance from Junction to Ambient | $R_{\theta JA}$ | 357 | $^\circ\text{C/W}$ |
| Operation Junction and Storage Temperature Range | T_J, 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: Pulse width limited by junction temperature.

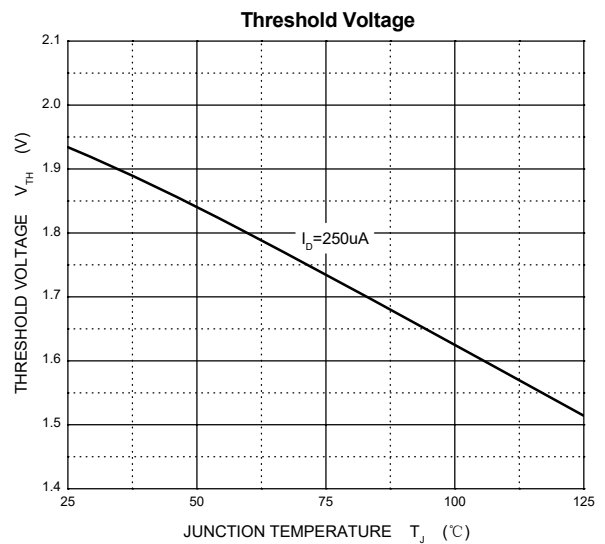
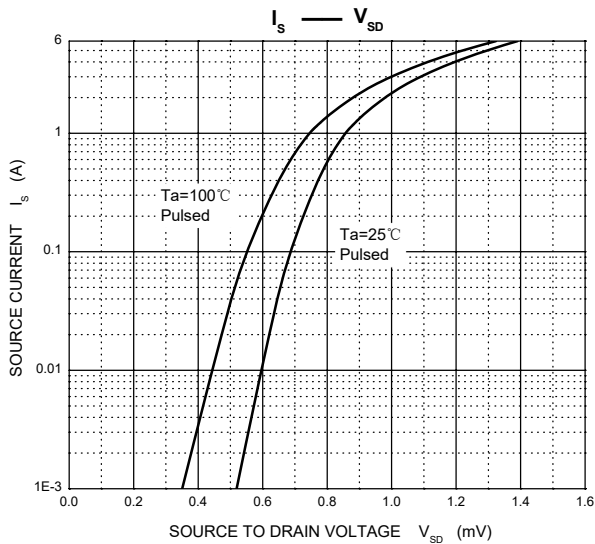
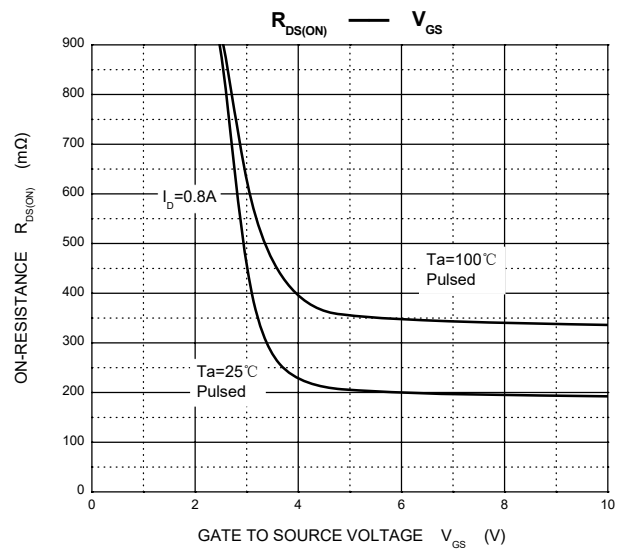
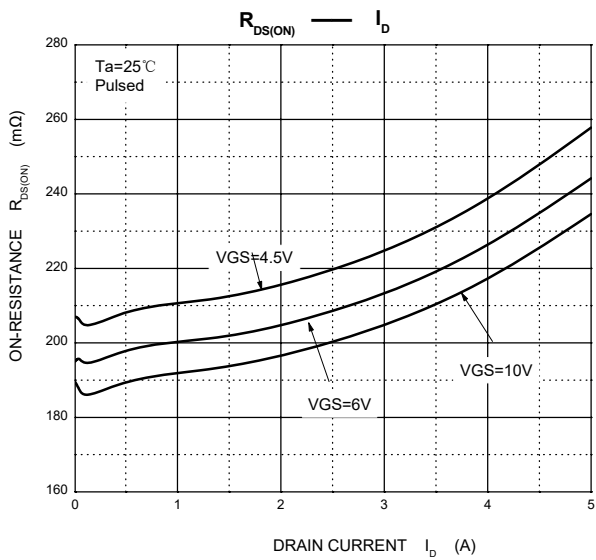
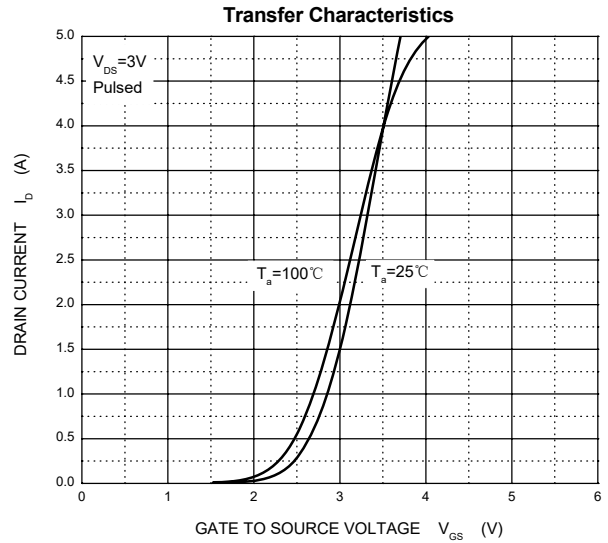
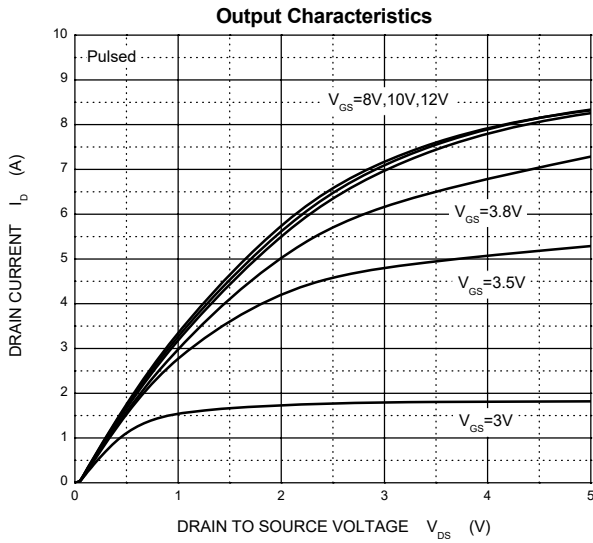
MOSFET ELECTRICAL CHARACTERISTICS

$T_a=25\text{ }^\circ\text{C}$ unless otherwise specified

| Parameter | Symbol | Test Condition | Min | Typ | Max | Unit |
|--------------------------------------|---------------|---|-----|------|-----------|------------|
| STATIC PARAMETERS | | | | | | |
| Drain-source breakdown voltage | $V_{(BR)DSS}$ | $V_{GS} = 0V, I_D = 250\mu A$ | 100 | | | V |
| Zero gate voltage drain current | I_{DSS} | $V_{DS} = 100V, V_{GS} = 0V$ | | | 1 | μA |
| Gate-body leakage current | I_{GSS} | $V_{GS} = \pm 20V, V_{DS} = 0V$ | | | ± 100 | nA |
| Gate threshold voltage(note 1) | $V_{GS(th)}$ | $V_{DS} = V_{GS}, I_D = 250\mu A$ | 1.2 | | 2.5 | V |
| Drain-source on-resistance (note 1) | $R_{DS(on)}$ | $V_{GS} = 10V, I_D = 2.0A$ | | 190 | 220 | m Ω |
| | | $V_{GS} = 4.5V, I_D = 2.0A$ | | 200 | 240 | m Ω |
| Forward transconductance (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 | $t_{d(on)}$ | $V_{DD} = 50V, V_{GEN} = 4.5V$ $R_L = 39\Omega, R_G = 1\Omega, I_D = 1.3A$ | | | 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 $\leq 300\mu s$, duty cycle $\leq 0.5\%$.
 2. Guaranteed by design, not subject to production testing.

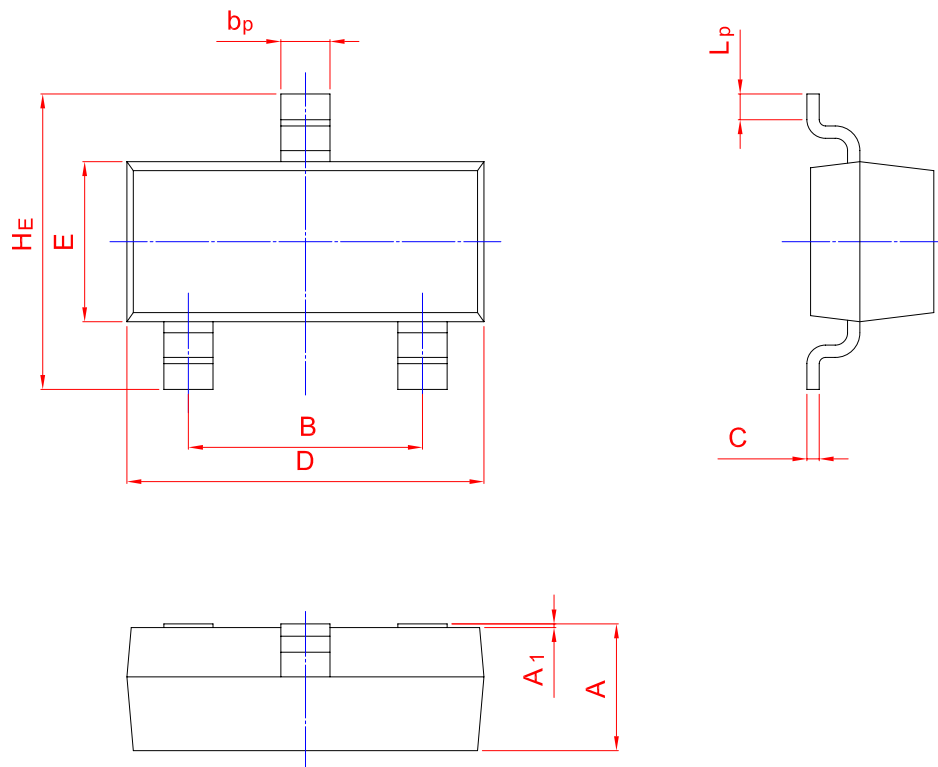
Typical Characteristics



PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT-23



| UNIT | A | B | b_p | C | D | E | H_E | A_1 | L_p |
|------|------|------|-------|------|------|------|-------|-------|-------|
| mm | 1.40 | 2.04 | 0.50 | 0.19 | 3.10 | 1.65 | 3.00 | 0.100 | 0.50 |
| | 0.95 | 1.78 | 0.35 | 0.08 | 2.70 | 1.20 | 2.20 | 0.013 | 0.20 |