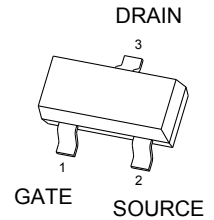
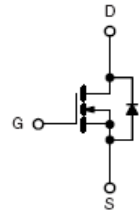




MT3404 N-Channel 30-V(D-S) MOSFET

| $V_{(BR)DSS}$ | $R_{DS(on)MAX}$ | I_D |
|---------------|-----------------|-------|
| 30V | 0.025Ω@ 10V | 5.8A |
| | 0.035Ω@ 4.5V | |



General FEATURE

- TrenchFET Power MOSFET
- Lead free product is acquired
- Surface mount package

APPLICATION

- Load Switch for Portable Devices
- DC/DC Converter

MARKING :3404

SOT-23

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

| Parameter | Symbol | Value | Unit |
|---|-----------------|-----------|---------------|
| Drain-Source Voltage | V_{DS} | 30 | V |
| Gate-Source Voltage | V_{GS} | ±20 | |
| Continuous Drain Current | I_D | 5.8 | A |
| Pulsed Drain Current*1 | I_{DM} | 20 | |
| Continuous Source-Drain Diode Current | I_S | 1.0 | |
| Maximum Power Dissipation | P_D | 1.4 | W |
| Thermal Resistance from Junction to Ambient($t \leq 10s$) | $R_{\theta JA}$ | 89 | $^{\circ}C/W$ |
| Junction Temperature | T_J | -55 ~+150 | $^{\circ}C$ |
| Storage Temperature | T_{stg} | -55 ~+150 | |

Note :

*1. Pulse Width $\leq 300\mu s$, Duty cycle $\leq 2\%$



MOSFET ELECTRICAL CHARACTERISTICS

T_a =25 °C unless otherwise specified

| Parameter | Symbol | Test Condition | Min | Typ | Max | Units |
|--|----------------------|--|-----|-------|-------|-------|
| Static | | | | | | |
| Drain-source breakdown voltage | V _{(BR)DSS} | V _{GS} = 0V, I _D = 250μA | 30 | - | - | V |
| Gate-source threshold voltage | V _{GS(th)} | V _{DS} =V _{GS} , I _D = 250μA | 1.2 | 1.6 | 2.4 | |
| Gate-source leakage | I _{GSS} | V _{DS} =0V, V _{GS} =±20V | - | - | ±100 | nA |
| Zero gate voltage drain current | I _{DSS} | V _{DS} =24V, V _{GS} =0V | - | - | 100 | nA |
| Drain-source on-state resistance ^a | R _{DS(on)} | V _{GS} =10V, I _D =5.8A | - | 0.023 | 0.025 | Ω |
| | | V _{GS} =4.5V, I _D =5A | - | 0.032 | 0.035 | |
| Forward transconductance ^a | g _{fs} | V _{DS} =5V, I _D =5A | - | 15 | - | S |
| Dynamic^b | | | | | | |
| Input capacitance | C _{iss} | V _{DS} =15V, V _{GS} =0V, f =1MHz | - | 255 | - | pF |
| Output capacitance | C _{oss} | | - | 45 | - | |
| Reverse transfer capacitance | C _{rss} | | - | 35 | - | |
| Total gate charge | Q _g | V _{DS} =15V, V _{GS} =10V, I _D =5.0A | - | 5.2 | - | nC |
| Gate-source charge | Q _{gs} | | - | 0.85 | - | |
| Gate-drain charge | Q _{gd} | | - | 1.3 | - | |
| Turn-on delay time | t _{d(on)} | V _{DD} =15V, R _L =3Ω V _{GS} =10V, R _{gen} =3Ω | - | 4.5 | - | ns |
| Rise time | t _r | | - | 2.5 | - | |
| Turn-off delay time | t _{d(off)} | | - | 14.5 | - | |
| Fall time | t _f | | - | 3.5 | - | |
| Drain-source body diode characteristics | | | | | | |
| Continuous source-drain diode current | I _S | T _C =25°C | - | - | 2.5 | A |
| Body diode voltage | V _{SD} | I _S =1.0A | - | 0.7 | 1.0 | V |

Notes :

a.Pulse Test : Pulse Width < 300μs, Duty Cycle ≤2%.

b.Guaranteed by design, not subject to production testing.



Typical Electrical and Thermal Characteristics

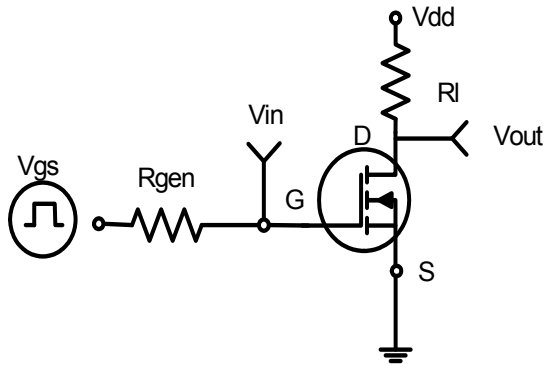


Figure 1: Switching Test Circuit

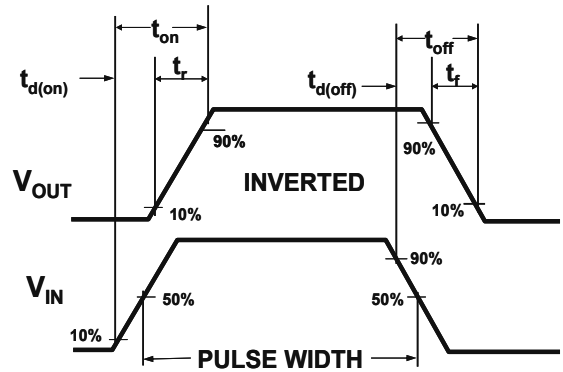


Figure 2: Switching Waveforms

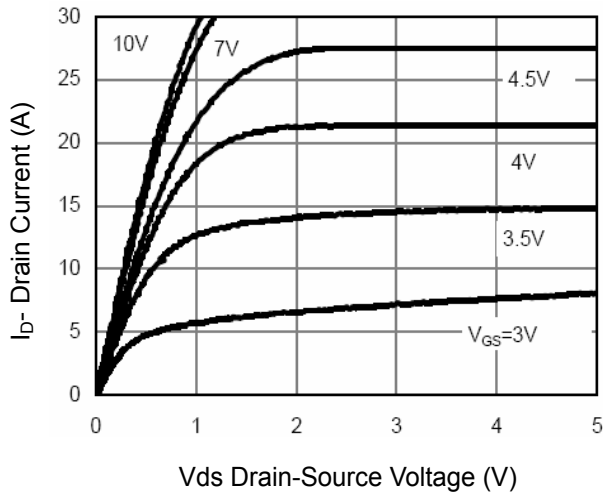


Figure 3 Output Characteristics

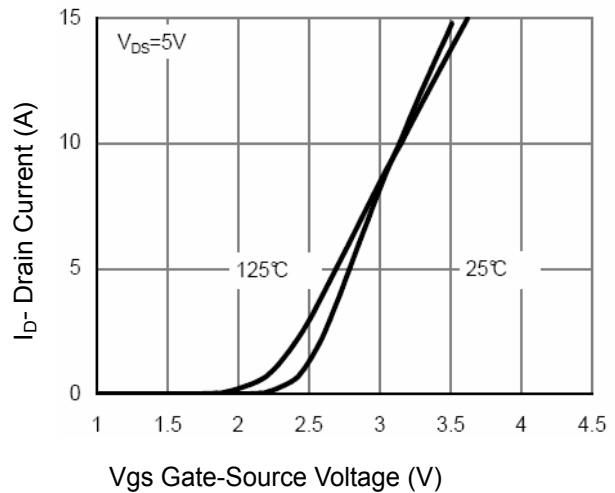


Figure 4 Transfer Characteristics

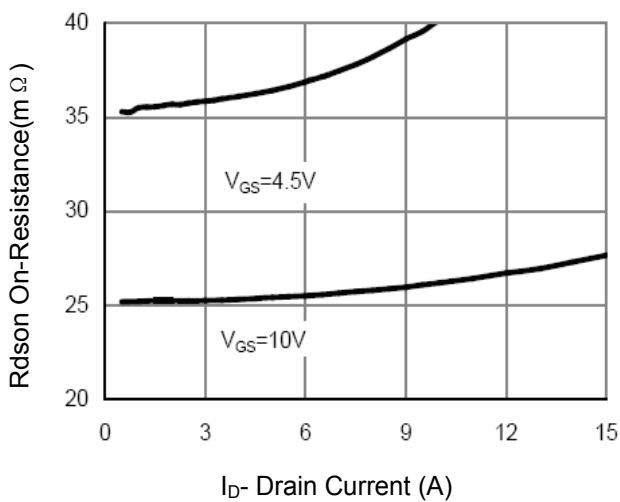


Figure 5 Drain-Source On-Resistance

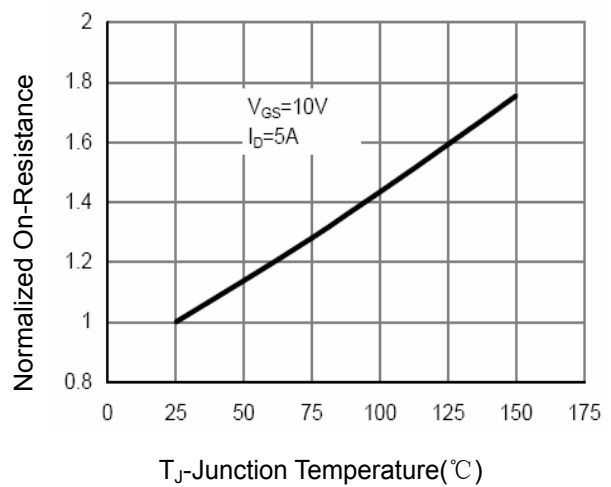


Figure 6 Drain-Source On-Resistance

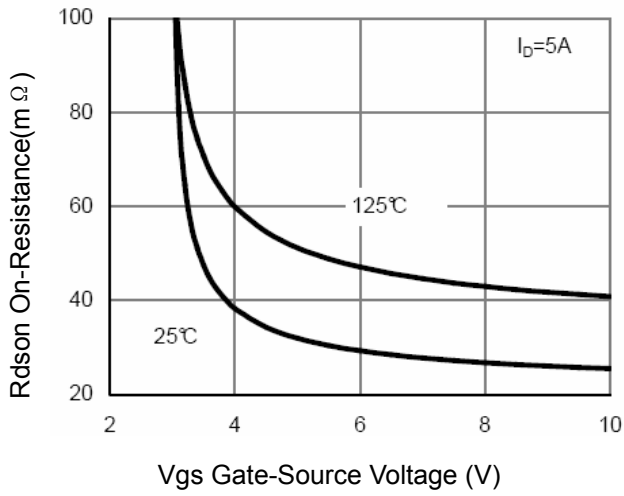


Figure 7 Rdson vs Vgs

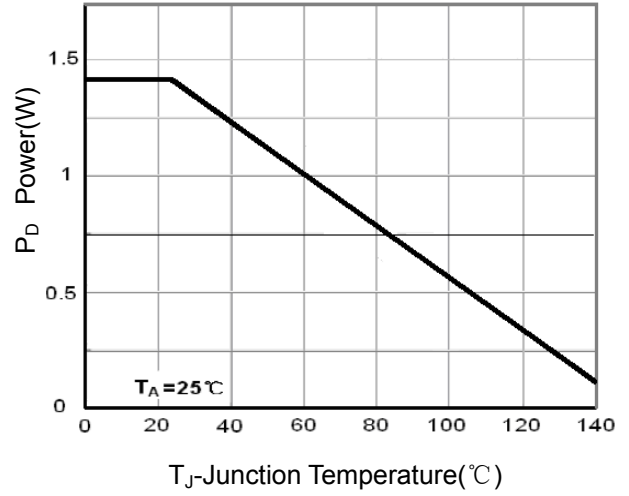


Figure 8 Power Dissipation

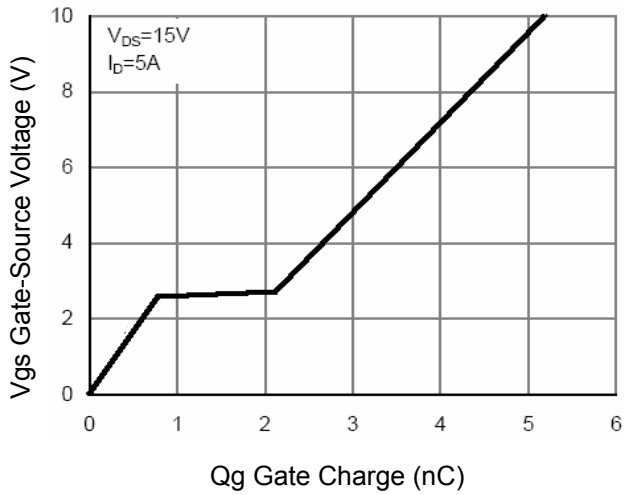


Figure 9 Gate Charge

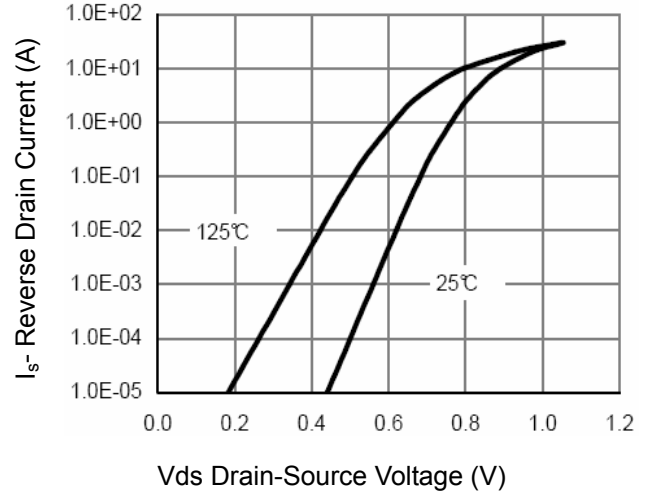


Figure 10 Source- Drain Diode Forward

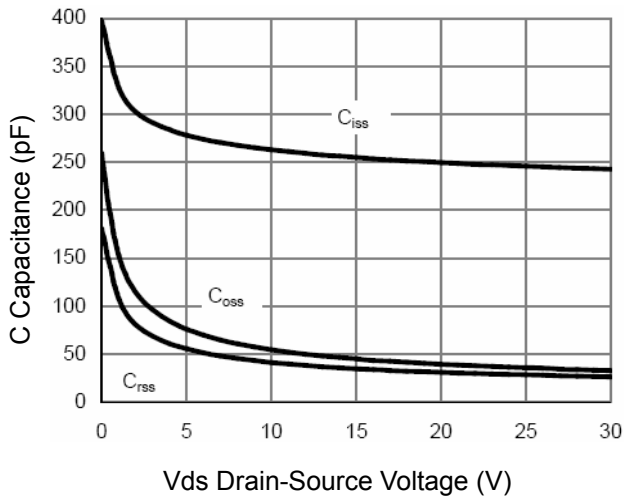


Figure 11 Capacitance vs Vds

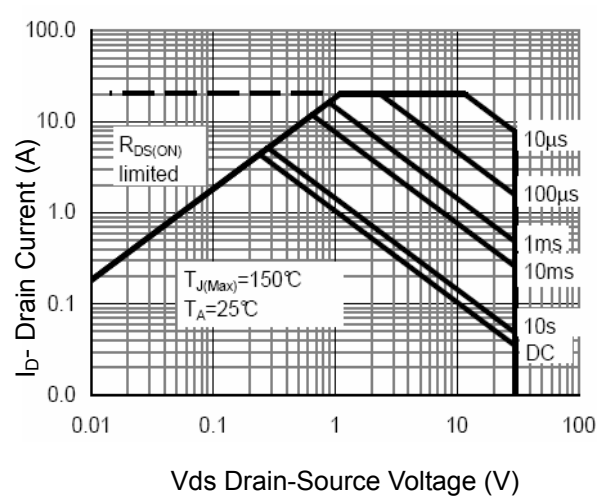
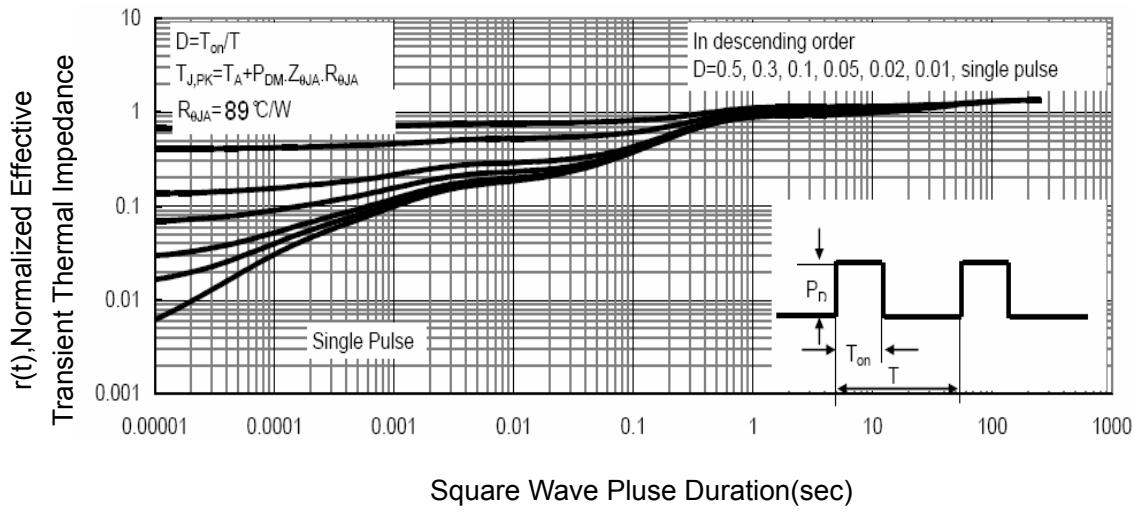


Figure 12 Safe Operation Area



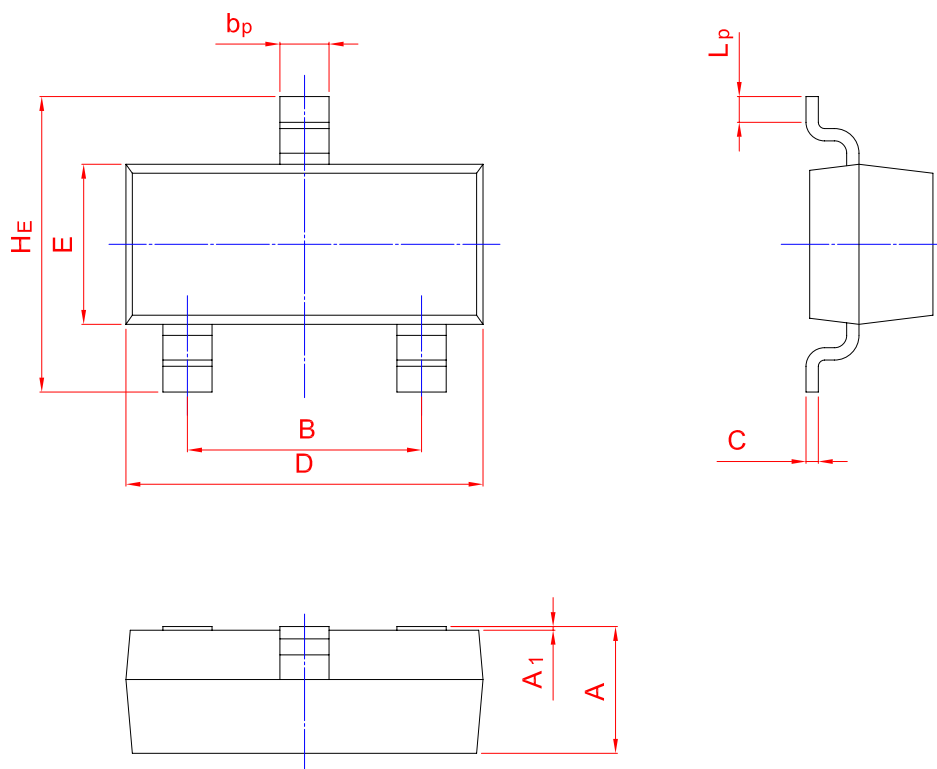
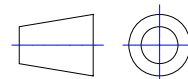
Square Wave Pulse Duration(sec)
Figure 13 Normalized Maximum Transient Thermal Impedance



PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT-23



| UNIT | A | B | bp | C | D | E | HE | A1 | Lp |
|------|------|------|------|------|------|------|------|-------|------|
| 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 |