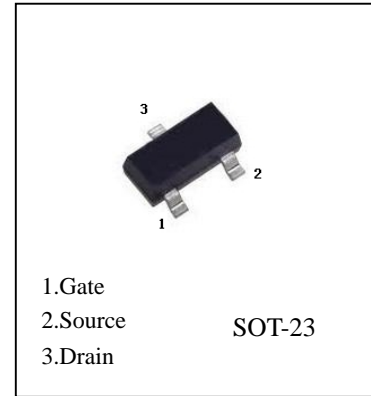
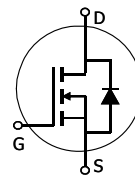


FEATURES

- Lead free product is acquired
Surface mount package

AO3402
N-Channel MOSFET



Absolute Maximum Ratings (TA=25°C, unless otherwise noted)

| Parameter | Symbol | Value | Unit |
|------------------------------------------------------|-----------------|----------|---------------|
| Drain-Source Voltage | V_{DS} | 30 | V |
| Gate-Source Voltage | V_{GS} | ± 12 | V |
| Continuous Drain Current | I_D | 4 | A |
| Pulsed Drain Current (note 1) | I_{DM} | 15 | A |
| Power Dissipation | P_D | 1.4 | W |
| Thermal Resistance from Junction to Ambient (note 2) | $R_{\theta JA}$ | 357 | $^{\circ}C/W$ |
| Junction Temperature | T_J | 150 | $^{\circ}C$ |
| Storage Temperature | T_{STG} | -55~+150 | $^{\circ}C$ |

AO3402

Electrical Characteristics (TA=25°C, unless otherwise noted)

| Parameter | Symbol | Test Condition | Min | Typ | Max | Unit |
|-------------------------------------------|---------------|------------------------------------------------------------------------|-----|------|-----------|------------|
| STATIC CHARACTERISTICS | | | | | | |
| Drain-source breakdown voltage | $V_{(BR)DSS}$ | $V_{GS} = 0V, I_D = 250\mu A$ | 30 | | | V |
| Zero gate voltage drain current | I_{DSS} | $V_{DS} = 24V, V_{GS} = 0V$ | | | 1 | μA |
| Gate-body leakage current | I_{GSS} | $V_{GS} = \pm 12V, V_{DS} = 0V$ | | | ± 100 | nA |
| Gate threshold voltage (note 3) | $V_{GS(th)}$ | $V_{DS} = V_{GS}, I_D = 250\mu A$ | 0.6 | | 1.4 | V |
| Drain-source on-resistance (note 3) | $R_{DS(on)}$ | $V_{GS} = 10V, I_D = 4A$ | | | 55 | m Ω |
| | | $V_{GS} = 4.5V, I_D = 3A$ | | | 70 | m Ω |
| | | $V_{GS} = 2.5V, I_D = 2A$ | | | 110 | m Ω |
| Forward transconductance (note 3) | g_{FS} | $V_{DS} = 15V, I_D = 4A$ | | 8 | | S |
| Diode forward voltage (note 3) | V_{SD} | $I_S = 1A, V_{GS} = 0V$ | | | 1 | V |
| DYNAMIC CHARACTERISTICS (note 4) | | | | | | |
| Input capacitance | C_{iss} | $V_{DS} = 15V, V_{GS} = 0V, f = 1MHz$ | | 390 | | pF |
| Output capacitance | C_{oss} | | | 54.5 | | pF |
| Reverse transfer capacitance | C_{rss} | | | 41 | | Pf |
| Gate resistance | R_g | $V_{DS} = 0V, V_{GS} = 0V, f = 1MHz$ | | 3 | | Ω |
| SWITCHING CHARACTERISTICS (note 4) | | | | | | |
| Turn-on delay time | $t_{d(on)}$ | $V_{GS} = 10V, V_{DS} = 15V,$ $R_L = 3.75\Omega, R_{GEN} = 6\Omega$ | | 3.3 | | ns |
| Turn-on rise time | t_r | | | 1 | | ns |
| Turn-off delay time | $t_{d(off)}$ | | | 21.7 | | ns |
| Turn-off fall time | t_f | | | 2.1 | | ns |
| Total gate charge | Q_g | $V_{DS} = 15V, V_{GS} = 4.5V, I_D = 4A$ | | 4.34 | | nC |
| Gate-source Charge | Q_{gs} | | | 0.6 | | nC |
| Gate-drain Charge | Q_{gd} | | | 1.38 | | nC |
| Body diode reverse recovery time | t_r | $I_F = 4A, dI/dt = 100A/\mu s$ | | 1.2 | | ns |
| Body diode reverse recovery charge | Q_{rr} | | | 6.3 | | nC |

Notes :

1. Repetitive rating : Pulse width limited by junction temperature.
2. Surface mounted on FR4 board , $t_s \leq 10s$.
3. Pulse Test : Pulse Width $\leq 80\mu s$, Duty Cycle $\leq 0.5\%$.
4. Guaranteed by design, not subject to producing.

AO3402 Typical Characteristics

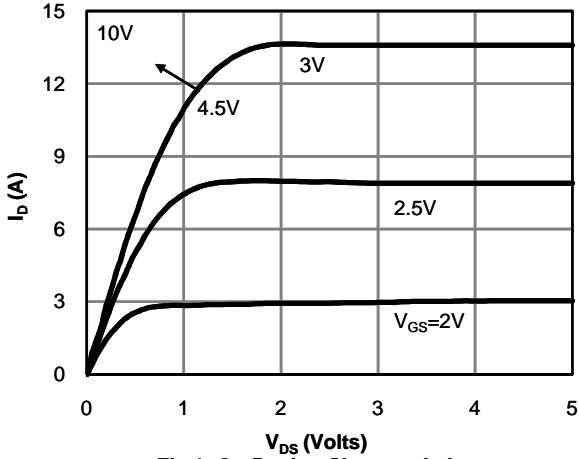


Fig 1: On-Region Characteristics

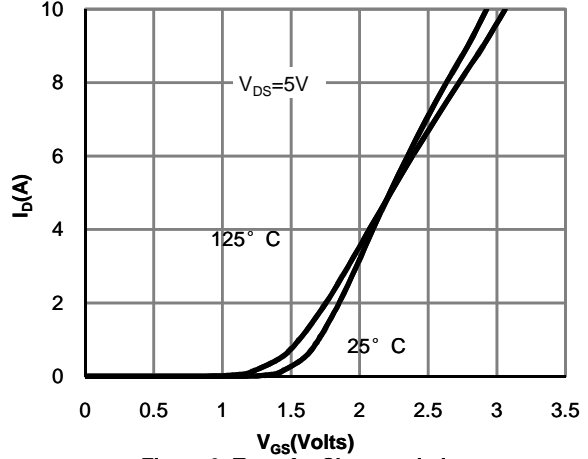


Figure 2: Transfer Characteristics

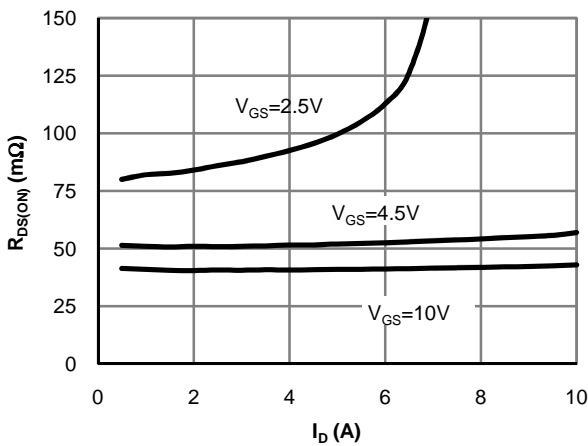


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

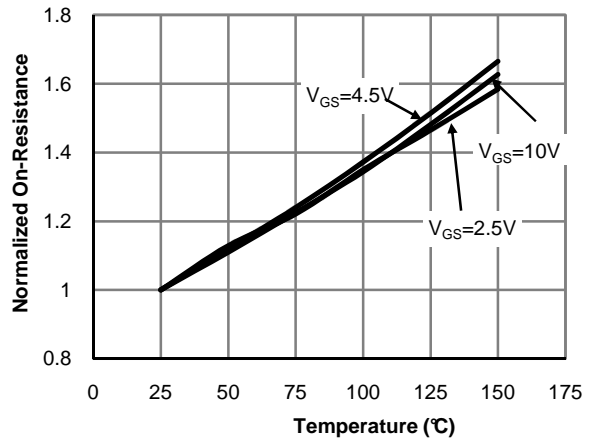


Figure 4: On-Resistance vs. Junction Temperature

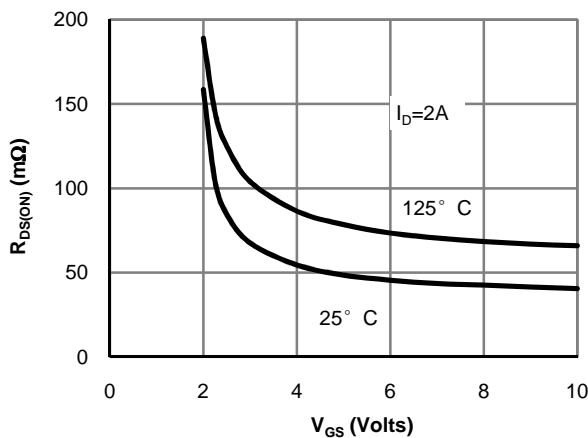


Figure 5: On-Resistance vs. Gate-Source Voltage

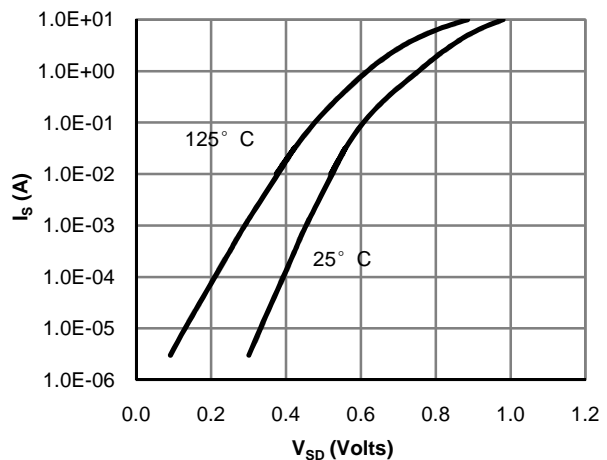


Figure 6: Body-Diode Characteristics

AO3402 Typical Characteristics

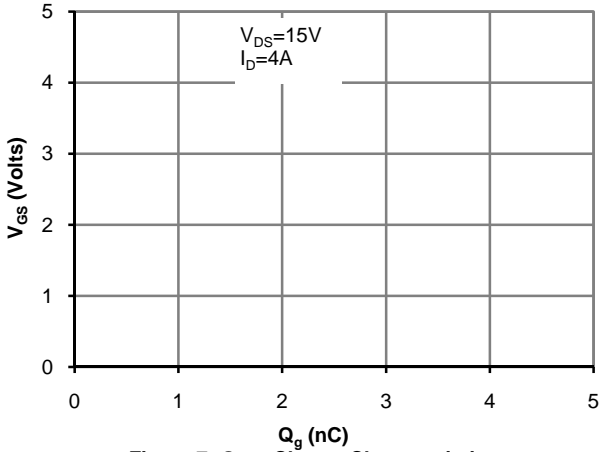


Figure 7: Gate-Charge Characteristics

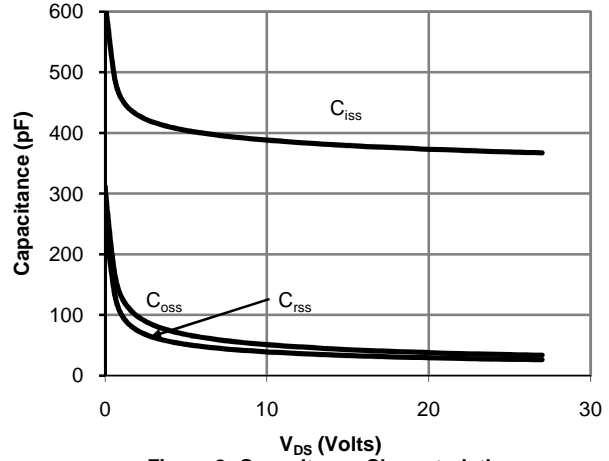


Figure 8: Capacitance Characteristics

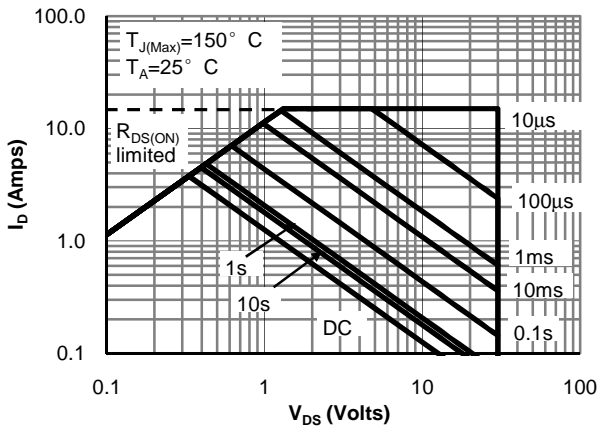


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

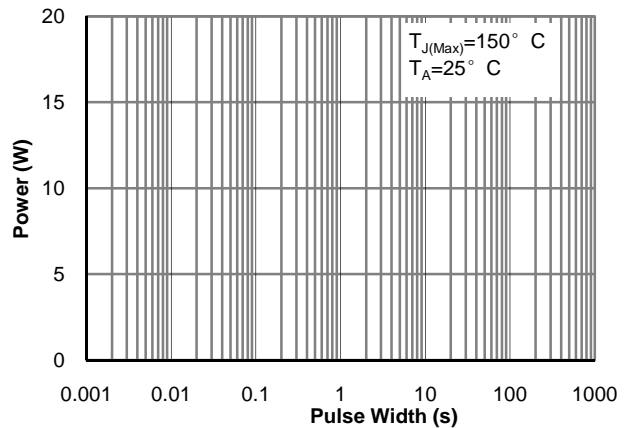


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

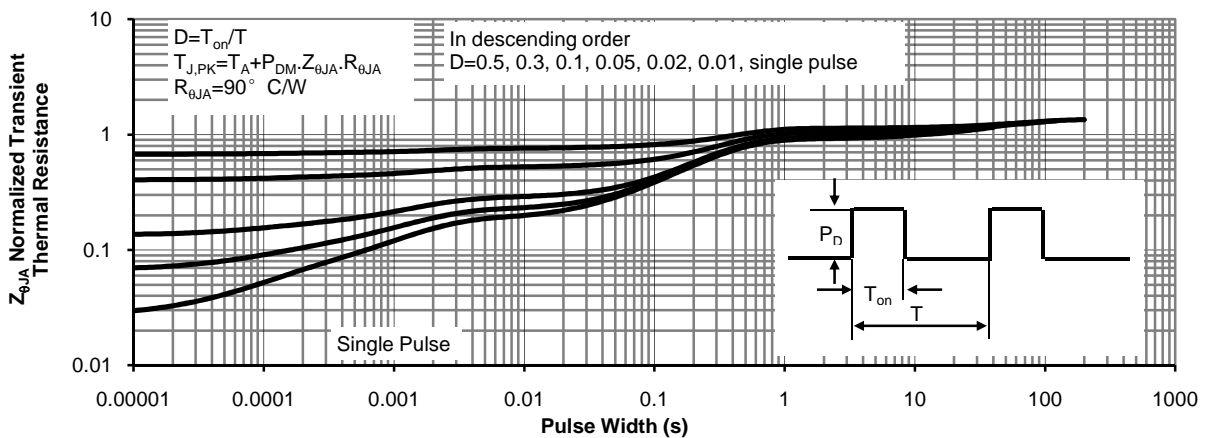


Figure 11: Normalized Maximum Transient Thermal Impedance