



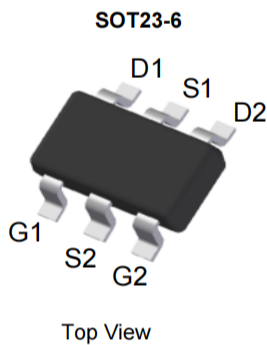
Product Summary

| | |
|--------------|------|
| BV_{DSS} | 20V |
| $R_{DS(ON)}$ | 45mΩ |
| I_D | 4A |

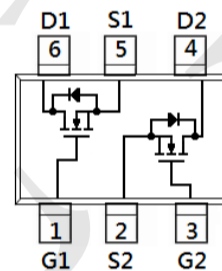
Application

- Notebook
- Load Switch
- Networking
- Hand-held Instruments

Package and Pin Configuration



Circuit diagram



Marking:



Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ unless otherwise noted)

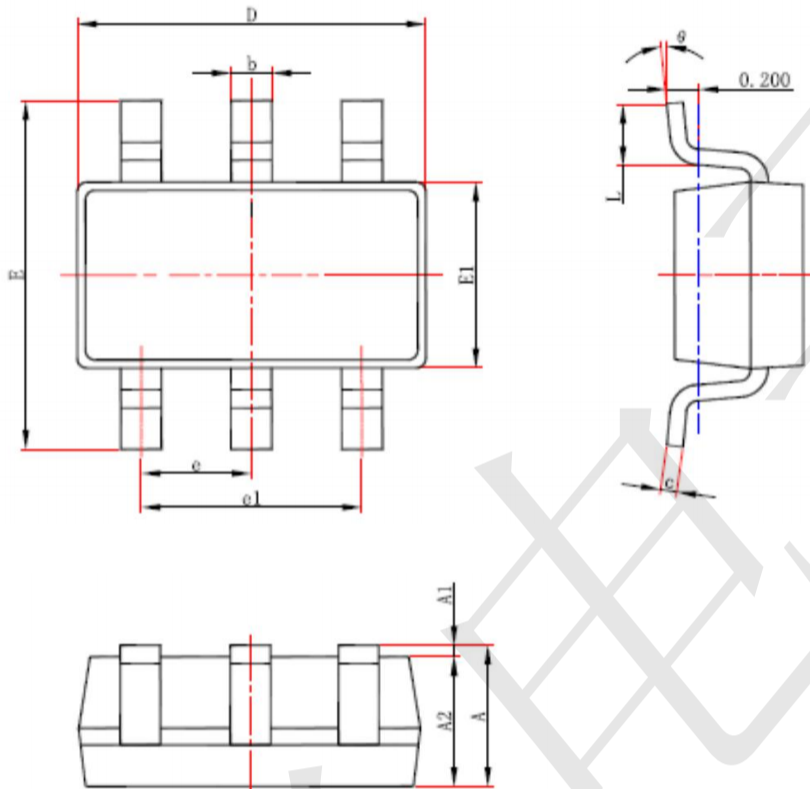
| PARAMETER | SYMBOL | LIMIT | UNITS |
|---|-----------------|---------------------------------|-------------------------|
| Drain-Source Voltage | V_{DS} | 20 | V |
| Gate-Source Voltage | V_{GS} | ± 12 | V |
| Continuous Drain Current | I_D | 4 | A |
| Pulsed Drain Current | I_{DM} | 10 | A |
| Power Dissipation | P_D | $T_A=25^\circ\text{C}$ | 1.25 W |
| | | Derate above 25°C | 10 mW/ $^\circ\text{C}$ |
| Operating Junction and Storage Temperature Range | T_J, T_{STG} | -55~150 | $^\circ\text{C}$ |
| Typical Thermal Resistance - Junction to Ambient ^(Note 3) | $R_{\theta JA}$ | 100 | $^\circ\text{C/W}$ |

Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

| PARAMETER | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNITS |
|---|--------------|---|------|------|-----------|------------|
| Static | | | | | | |
| Drain-Source Breakdown Voltage | BV_{DSS} | $V_{GS}=0V, I_D=250\mu A$ | 20 | - | - | V |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS}=V_{GS}, I_D=250\mu A$ | 0.4 | 0.6 | 1.2 | V |
| Drain-Source On-State Resistance | $R_{DS(on)}$ | $V_{GS}=4.5V, I_D=4A$ | - | 28 | 36 | m Ω |
| | | $V_{GS}=2.5V, I_D=3.7A$ | - | 35 | 45 | |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS}=20V, V_{GS}=0V$ | - | 0.01 | 1 | μA |
| Gate-Source Leakage Current | I_{GSS} | $V_{GS}=\pm 12V, V_{DS}=0V$ | - | - | ± 100 | nA |
| Dynamic | | | | | | |
| Total Gate Charge | Q_g | $V_{DS}=10V, I_D=4.0A,$ $V_{GS}=4.5V$ (Note 1,2) | - | 7 | - | nC |
| Gate-Source Charge | Q_{gs} | | - | 1.3 | - | |
| Gate-Drain Charge | Q_{gd} | | - | 2 | - | |
| Input Capacitance | C_{iss} | $V_{DS}=10V, V_{GS}=0V,$ $f=1.0MHz$ | - | 513 | - | pF |
| Output Capacitance | C_{oss} | | - | 74 | - | |
| Reverse Transfer Capacitance | C_{rss} | | - | 60 | - | |
| Switching | | | | | | |
| Turn-On Delay Time | $t_{d(on)}$ | $V_{DD}=10V, I_D=4.0A,$ $V_{GS}=4.5V,$ $R_G=6\Omega$ (Note 1,2) | - | 6.2 | - | ns |
| Turn-On Rise Time | t_r | | - | 56 | - | |
| Turn-Off Delay Time | $t_{d(off)}$ | | - | 23 | - | |
| Turn-Off Fall Time | t_f | | - | 13 | - | |
| Drain-Source Diode | | | | | | |
| Maximum Continuous Drain-Source Diode Forward Current | I_S | --- | - | - | 1.5 | A |
| Diode Forward Voltage | V_{SD} | $I_S=1.0A, V_{GS}=0V$ | - | 0.71 | 1.2 | V |



SOT23-6 Package Outline Dimensions



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min. | Max. | Min. | Max. |
| A | 1.050 | 1.250 | 0.041 | 0.049 |
| A1 | 0.000 | 0.100 | 0.000 | 0.004 |
| A2 | 1.050 | 1.150 | 0.041 | 0.045 |
| b | 0.300 | 0.500 | 0.012 | 0.020 |
| c | 0.100 | 0.200 | 0.004 | 0.008 |
| D | 2.820 | 3.020 | 0.111 | 0.119 |
| E1 | 1.500 | 1.700 | 0.059 | 0.067 |
| E | 2.650 | 2.950 | 0.104 | 0.116 |
| e | 0.950(BSC) | | 0.037(BSC) | |
| e1 | 1.800 | 2.000 | 0.071 | 0.079 |
| L | 0.300 | 0.600 | 0.012 | 0.024 |
| θ | 0° | 8° | 0° | 8° |

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