

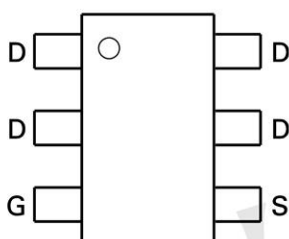
Product Summary

- 60V/ 5A
 $R_{DS(ON)} = 25m\Omega (Typ) @ V_{GS} = -10V$
 $R_{DS(ON)} = 30m\Omega (Typ) @ V_{GS} = -4.5V$
- Reliable and Rugged
- Lead Free and Green Devices Available (RoHS Compliant)

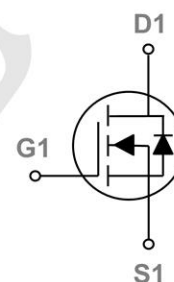
Application

- DC-DC Converters.
- Load Switch.
- Power Management.

Package and Pin Configuration



Circuit diagram



Marking:



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

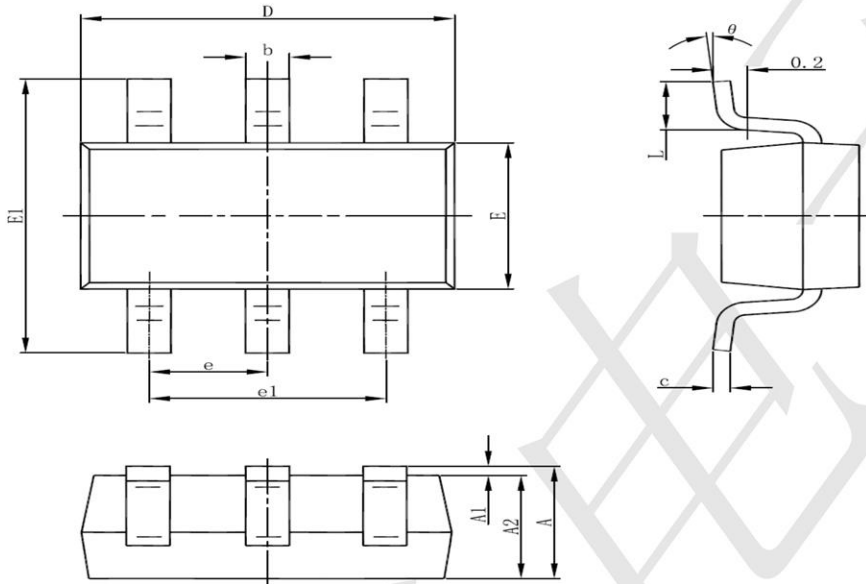
| Parameter | Symbol | Value | Unit |
|--|-----------------|----------|--------------|
| Drain-Source Voltage | V_{DS} | 60 | V |
| Gate-Source Voltage | V_{GS} | ± 20 | V |
| Continuous Drain Current | I_D | 5 | A |
| Pulsed Drain Current (note 1) | I_{DM} | 30 | A |
| Power Dissipation | P_D | 1.7 | A |
| Thermal Resistance from Junction to Ambient (note 2) | $R_{\theta JA}$ | 106 | $^\circ C/W$ |
| Junction Temperature | T_J | 150 | $^\circ C$ |
| Storage Temperature | T_{STG} | -55~+150 | $^\circ C$ |

Electrical Characteristics (T_A=25°C unless otherwise noted)

| Parameter | Symbol | Test conditions | Min | Typ | Max | Unit |
|--|----------------------|--|-----|------|------|------|
| Static Characteristics | | | | | | |
| Drain-Source Breakdown Voltage | V _{(BR)DSS} | V _{GS} =0V, I _D =250μA | 60 | | | V |
| Gate-Threshold Voltage ^(Note3) | V _{GS(th)} | V _{DS} =V _{GS} , I _D =250μA | 1.0 | | 3.0 | V |
| Gate-Body Leakage Current | I _{GSS} | V _{GS} =± 20V, V _{DS} =0V | | | ±100 | nA |
| Zero Gate Voltage Drain Current | I _{DSS} | V _{DS} =60V, V _{GS} =0V | | | 1 | μA |
| Drain-Source On-Resistance ^(Note3) | R _{DS(on)} | V _{GS} =10V, I _D =3A | | 25 | 29 | mΩ |
| | | V _{GS} =4.5V, I _D =3A | | 30 | 35 | |
| Forward Transconductance ^(Note3) | g _{fs} | V _{DS} =5V, I _D =4.5A | 11 | | | S |
| Dynamic Characteristics^(Note4) | | | | | | |
| Input Capacitance | C _{iss} | V _{DS} =30V, V _{GS} =0V, f=1MHz | | 500 | | pF |
| Output Capacitance | C _{oss} | | | 60 | | |
| Reverse Transfer Capacitance | C _{rss} | | | 25 | | |
| Switching Characteristics^(Note4) | | | | | | |
| Total Gate Charge | Q _g | V _{DS} =48V, V _{GS} =10V, I _D =15A | | 12 | | nC |
| Gate-Source Charge | Q _{gs} | | | 4.1 | | |
| Gate-Drain Charge | Q _{gd} | | | 4.5 | | |
| Turn-on Delay Time | t _{d(on)} | V _{DD} =30V, V _{GS} =10V, I _D =2A, R _G =3Ω, R _L =6.7Ω | | 5.0 | | ns |
| Turn-on Rise Time | t _r | | | 2.6 | | |
| Turn-off Delay Time | t _{d(off)} | | | 16.1 | | |
| Turn-off Fall Time | t _f | | | 2.3 | | |
| Drain-Source Diode Characteristics | | | | | | |
| Diode Forward Voltage ^(Note3) | V _{SD} | V _{GS} =0V, I _S =20A | | | 1.2 | V |
| Diode Forward Current ^(Note2) | I _S | | | | 20 | A |
| Reverse Recovery Time | t _{rr} | I _F =20A, di/dt=100A/μs ^(Note4) | | 35 | | nS |
| Reverse Recovery Charge | Q _{rr} | | | | 53 | |
| Forward Turn-On Time | t _{on} | Intrinsic turn-on time is negligible (turn-on is dominated by LS+LD) | | | | |



SOT23-6 Package Information



| 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 |
| E | 1.500 | 1.700 | 0.059 | 0.067 |
| E1 | 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 |
| theta | 0° | 8° | 0° | 8° |