

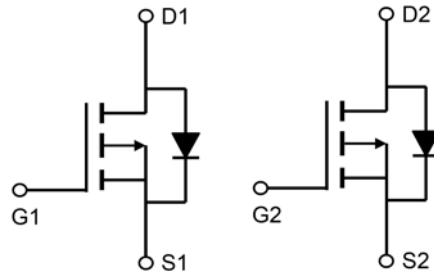
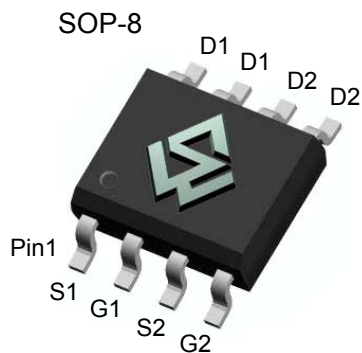
20V Dual P-Channel Enhancement-Mode MOSFET

General Description

- Low gate charge.
- Use as a load switch.
- Use in PWM applications

Product Summary

- BV_{DSS} -20V
- $R_{DS(on)}$ @VGS = -4.5V < 90mΩ
- $R_{DS(on)}$ @VGS = -2.5V < 120mΩ



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

| Parameter | Symbol | Maximum | Units |
|---|----------------|------------|------------------|
| Drain-Source Voltage | V_{DS} | -20 | V |
| Gate-Source Voltage | V_{GS} | ± 10 | V |
| Drain Current ($T_A=25^\circ\text{C}$) | I_D | -2.8 | A |
| Drain Current ($T_A=75^\circ\text{C}$) | | -1.5 | A |
| Pulsed Drain Current ^a | I_{DM} | -12 | A |
| Power Dissipation ^b ($T_A=25^\circ\text{C}$) | P_D | 2.0 | W |
| Power Dissipation ^b ($T_A=75^\circ\text{C}$) | | 1.4 | W |
| Junction and Storage Temperature Range | T_J, T_{STG} | -55 ~ +150 | $^\circ\text{C}$ |

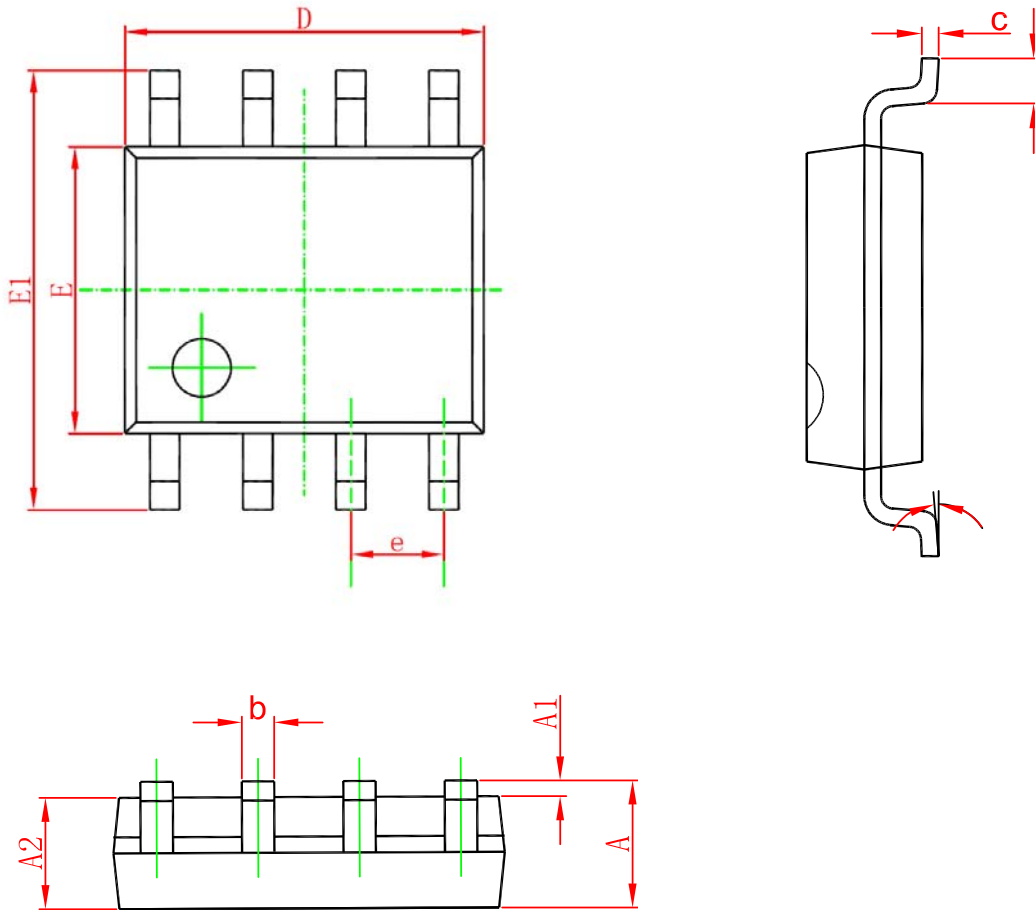
Thermal Characteristics

| Parameter | Symbol | Maximum | Units |
|--|-----------------|---------|--------------------|
| Junction-to-Ambient ^a ($t \leq 10\text{s}$) | $R_{\theta JA}$ | 50 | $^\circ\text{C/W}$ |
| Junction-to-Ambient ^{a,d} (Steady-State) | | 90 | $^\circ\text{C/W}$ |
| Junction-to-Lead (Steady-State) | $R_{\theta JL}$ | 25 | $^\circ\text{C/W}$ |

| Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted) | | | | | | |
|---|---------------------------------------|---|-------|-----|-----------|-----------|
| Symbol | Parameter | Conditions | Min | Typ | Max | Units |
| Off Characteristics | | | | | | |
| BV_{DSS} | Drain-Source Breakdown Voltage | $V_{GS} = 0V, I_D = -250\mu A$ | -20 | | | V |
| I_{DSS} | Zero Gate Voltage Drain Current | $V_{DS} = -20V, V_{GS} = 0V$ | | | -1 | μA |
| I_{GSS} | Gate-Body Leakage Current | $V_{GS} = \pm 10V, V_{DS} = 0V$ | | | ± 100 | nA |
| On Characteristics | | | | | | |
| $V_{GS(th)}$ | Gate Threshold Voltage | $V_{DS} = V_{GS}, I_D = -250\mu A$ | -0.45 | | -1.2 | V |
| $R_{DS(ON)}$ | Drain-Source On-State Resistance | $V_{GS} = -4.5V, I_D = -2.8A$ | | 75 | 90 | $m\Omega$ |
| | | $V_{GS} = -2.5V, I_D = -2.0A$ | | 100 | 120 | $m\Omega$ |
| g_{FS} | Forward Transconductance | $V_{DS} = -4.5V, I_D = -2.8A$ | | 16 | | S |
| Drain-Source Diode Characteristics | | | | | | |
| V_{SD} | Diode Forward Voltage | $V_{GS} = 0V, I_S = -1.0A$ | | | -1.3 | V |
| I_S | Maximum Body-Diode Continuous Current | | | | -1.6 | A |
| Dynamic Characteristics | | | | | | |
| C_{iss} | Input Capacitance | $V_{DS} = -10V, V_{GS} = 0V$ $f = 1.0MHz$ | | 690 | | μF |
| C_{oss} | Output Capacitance | | | 350 | | μF |
| C_{rss} | Reverse Transfer Capacitance | | | 115 | | μF |
| Switching Characteristics | | | | | | |
| Q_g | Total Gate Charge | $V_{DS} = -10V, I_D = -2.8A$ $V_{GS} = -6V$ | | 6.8 | | nC |
| Q_{gs} | Gate-Source Charge | | | 4 | | nC |
| Q_{gd} | Gate-Drain Charge | | | 5 | | nC |
| $t_{D(ON)}$ | Turn-On Delay Time | $V_{DD} = -10V, I_D = -1A$ $V_{GS} = -4V$ $R_{GEN} = -6\text{ ohm}$ | | 17 | | ns |
| t_r | Turn-On Rise Time | | | 48 | | ns |
| $t_{D(OFF)}$ | Turn-Off Delay Time | | | 44 | | ns |
| t_f | Turn-Off Fall Time | | | 35 | | ns |

- Repetitive rating, Pulse width limited by junction temperature $T_{J(MAX)}=150^\circ\text{C}$. Ratings are based on low frequency and duty cycles to keep initial $T_J=25^\circ\text{C}$
- The power dissipation P_D is based on $T_{J(MAX)}=150^\circ\text{C}$, using $\leq 10s$ junction-to-ambient thermal resistance.
- The value of $R_{\theta JA}$ is measured with the device mounted on $1in^2$ FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^\circ\text{C}$. The value in any given application depends on the user's specific board design.
- The $R_{\theta JA}$ is the sum of the thermal impedance from junction to lead $R_{\theta JL}$ and lead to ambient.

SOP-8 Package Outline



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min. | Max. | Min. | Max. |
| A | 1.350 | 1.750 | 0.053 | 0.069 |
| A1 | 0.100 | 0.250 | 0.004 | 0.010 |
| A2 | 1.350 | 1.550 | 0.053 | 0.061 |
| b | 0.330 | 0.510 | 0.013 | 0.020 |
| c | 0.170 | 0.250 | 0.006 | 0.010 |
| D | 4.700 | 5.100 | 0.185 | 0.200 |
| E | 3.800 | 4.000 | 0.150 | 0.157 |
| E1 | 5.800 | 6.200 | 0.228 | 0.244 |
| e | 1.270(BSC) | | 0.050(BSC) | |
| L | 0.400 | 1.270 | 0.016 | 0.050 |
| θ | 0° | 8° | 0° | 8° |