

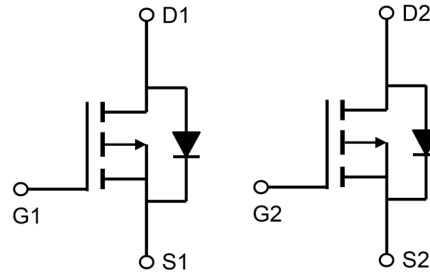
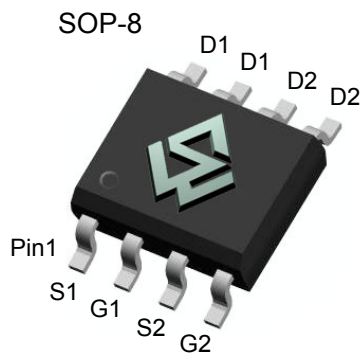
30V Dual P-Channel Enhancement-Mode MOSFET

General Description

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

Product Summary

- BV_{DSS} -30V
- $R_{DS(on)}$ @VGS = -10V < 55mΩ
- $R_{DS(on)}$ @VGS = -4.5V < 60mΩ
- $R_{DS(on)}$ @VGS = -2.5V < 80mΩ



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

Parameter	Symbol	Maximum	Units
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	± 12	V
Drain Current ($T_A=25^\circ\text{C}$)	I_D	-5.5	A
Drain Current ($T_A=75^\circ\text{C}$)		-2.5	A
Pulsed Drain Current ^a	I_{DM}	-20	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	$V_{GS} = 0V, I_D = -250\mu\text{A}$	-30			V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = -30V, V_{GS} = 0V$			-1	μA
I_{GSS}	Gate-Body Leakage Current	$V_{GS} = \pm 12V, V_{DS} = 0V$			± 100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = -250\mu\text{A}$	-1		-2.5	V
$R_{DS(ON)}$	Drain-Source On-State Resistance	$V_{GS} = -10V, I_D = -5.5A$		48	55	$\text{m}\Omega$
		$V_{GS} = -4.5V, I_D = -4.5A$		55	60	$\text{m}\Omega$
		$V_{GS} = -2.5V, I_D = -2.5A$		70	80	$\text{m}\Omega$
g_{FS}	Forward Transconductance	$V_{DS} = -5V, I_D = -5.5A$		22		S
Drain-Source Diode Characteristics						
V_{SD}	Diode Forward Voltage	$V_{GS} = 0V, I_S = -1.0A$			-1.2	V
I_S	Maximum Body-Diode Continuous Current				-2.5	A
Dynamic Characteristics						
C_{iss}	Input Capacitance	$V_{DS} = -15V, V_{GS} = 0V$ $f = 1.0\text{MHz}$		1020		pF
C_{oss}	Output Capacitance			125		pF
C_{rss}	Reverse Transfer Capacitance			85		pF
Switching Characteristics						
Q_g	Total Gate Charge	$V_{DS} = -15V, I_D = -5.5A$ $V_{GS} = -6V$		16		nC
Q_{gs}	Gate-Source Charge			4.8		nC
Q_{gd}	Gate-Drain Charge			4.5		nC
$t_{D(ON)}$	Turn-On Delay Time	$V_{DD} = -15V, I_D = -1A$ $V_{GS} = -6V$ $R_{GEN} = -6\text{ohm}$		8.5		ns
t_r	Turn-On Rise Time			7.5		ns
$t_{D(OFF)}$	Turn-Off Delay Time			18		ns
t_f	Turn-Off Fall Time			5		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 $\leq 10\text{s}$ 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.