

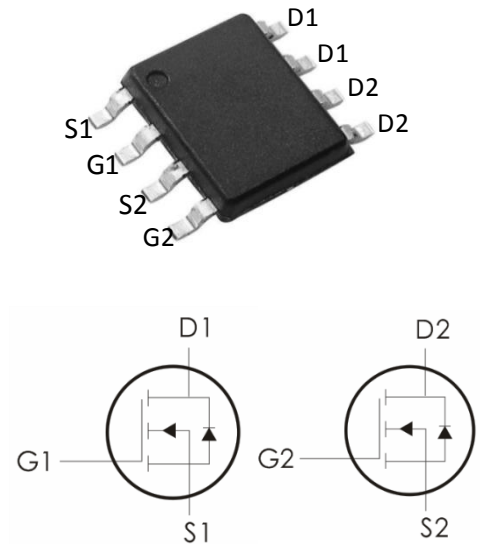
Description:

This Dual N-Channel MOSFET uses advanced trench technology and design to provide excellent $R_{DS(on)}$ with low gate charge.

It can be used in a wide variety of applications.

Features:

- 1) $V_{DS}=30V, I_D=6.9A, R_{DS(ON)}<32m\Omega @V_{GS}=10V$
- 2) Low gate charge.
- 3) Green device available.
- 4) Advanced high cell density trench technology for ultra low $R_{DS(ON)}$.
- 5) Excellent package for good heat dissipation.



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

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	± 12	V
I_D	Continuous Drain Current - $T_A=25^\circ\text{C}^A$	6.9	A
	Continuous Drain Current - $T_A=70^\circ\text{C}^A$	5.8	
	Pulsed Drain Current ^B	30	
P_D	Power Dissipation	2	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +150	$^\circ\text{C}$

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JL}$	Maximum Junction-to-Lead	60	$^\circ\text{C}/\text{W}$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	110	

Electrical Characteristics: ($T_C=25^\circ\text{C}$ 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	$V_{GS}=0V, V_{DS}=24V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 12V, V_{DS}=0A$	---	---	± 100	nA
On Characteristics³						
$V_{GS(th)}$	GATE-Source Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\ \mu\text{A}$	0.65	---	1.3	V
$R_{DS(on)}$	Drain-Source On Resistance	$V_{GS}=10V, I_D=6.9A$	---	24	32	$\text{m}\Omega$
		$V_{GS}=4.5V, I_D=5A$	---	27	36	
G_{FS}	Forward Transconductance	$V_{DS}=5V, I_D=5A$	---	9	---	S
Dynamic Characteristics⁴						
C_{iss}	Input Capacitance	$V_{DS}=15V, V_{GS}=0V, f=1\text{MHz}$	---	600	---	pF
C_{oss}	Output Capacitance		---	95	---	
C_{rss}	Reverse Transfer Capacitance		---	68	---	
R_g	Gate resistance	$V_{DS}=0V, V_{GS}=0V, f=1\text{MHz}$	---	3	---	Ω
Switching Characteristics⁴						
$t_{d(on)}$	Turn-On Delay Time	$V_{DS}=15V, R_L=2.1\ \Omega$ $R_{GEN}=3\ \Omega, V_{GS}=10V,$	---	4.6	---	ns
t_r	Rise Time		---	4.1	---	ns
$t_{d(off)}$	Turn-Off Delay Time		---	20.6	---	ns
t_f	Fall Time		---	5.2	---	ns
Q_g	Total Gate Charge	$V_{GS}=10V, V_{DS}=15V,$ $I_D=6.9A$	---	13.84	---	nC
Q_{gs}	Gate-Source Charge		---	1.82	---	nC
Q_{gd}	Gate-Drain "Miller" Charge		---	3.2	---	nC
Drain-Source Diode Characteristics						
V_{SD}	Source-Drain Diode Forward Voltage	$V_{GS}=0V, I_S=1A$	---	0.76	1	V

Trr	Body Diode Reverse Recovery Time	I F =6.9A, dI/dt=100A/	---	16.5	---	Ns
Qrr	Body Diode Reverse Recovery Charge	I F =6.9A, dI/dt=100A/	---	7.8	---	Nc

Notes:

A: The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^\circ\text{C}$. The value in any a given application depends on the user's specific board design. The current rating is based on the $t \leq 10\text{s}$ thermal resistance rating.

B: Repetitive rating, pulse width limited by junction temperature.

C: The $R_{\theta JA}$ is the sum of the thermal impedance from junction to lead $R_{\theta JL}$ and lead to ambient.

D: The static characteristics in Figures 1 to 6,12,14 are obtained using 80 μs pulses, duty cycle 0.5% max.

E: These tests are performed with the device mounted on 1 in² FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^\circ\text{C}$. The SOA curve provides a single pulse rating.

Typical Characteristics: ($T_C = 25^\circ\text{C}$ unless otherwise noted)

