

30V N-Channel Enhancement Mode MOSFET

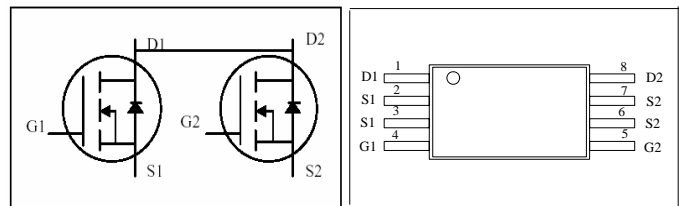
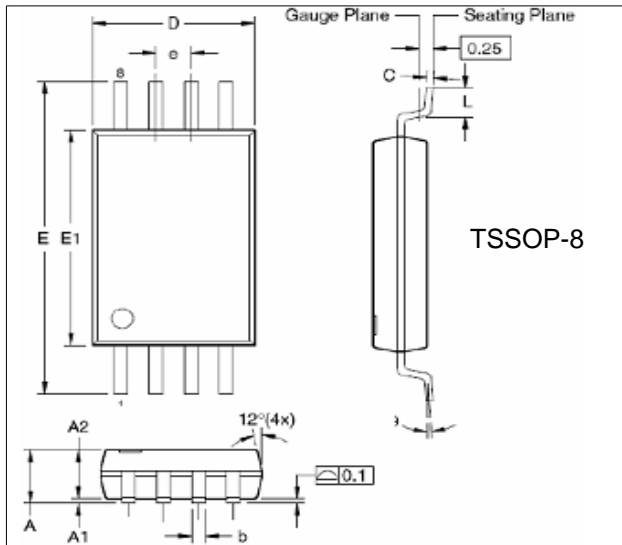
VDS= 30V

RDS(ON), Vgs@ 1 0V, Ids@ 8A = 16mΩ

RDS(ON), Vgs @4.5V, Ids @8A = 19mΩ

Features

- Advanced trench process technology
- High Density Cell Design For Ultra Low On-Resistance
- High Power and Current handling capability
- Ideal for Li ion battery pack applications



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	1.20 MAX.		E1	4.30	4.50
A1	0.05	0.15	e	0.65BSC	
A2	0.80	1.05	L	0.45	0.75
b	0.19	0.30	θ	0°	10°
C	0.90	0.20			
D	2.90	3.00			
E	6.40BSC				

Absolute Maximum Ratings (TA=25°C unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V <sub>DS</sub>	30	V
Gate-Source Voltage	V <sub>GS</sub>	±20	V
Drain Current-Continuous	I <sub>D</sub>	8	A
Drain Current-Continuous(T <sub>C</sub> =100°C)	I <sub>D</sub> (100°C)	5.5	A
Pulsed Drain Current	I <sub>DM</sub>	30	A
Maximum Power Dissipation	P <sub>D</sub>	2	W
Operating Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 To 150	°C

Thermal Characteristic

Thermal Resistance, Junction-to-Ambient(Note 2)	R <sub>θJA</sub>	62.5	°C/W
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## Electrical Characteristics (TA=25°C unless otherwise noted)

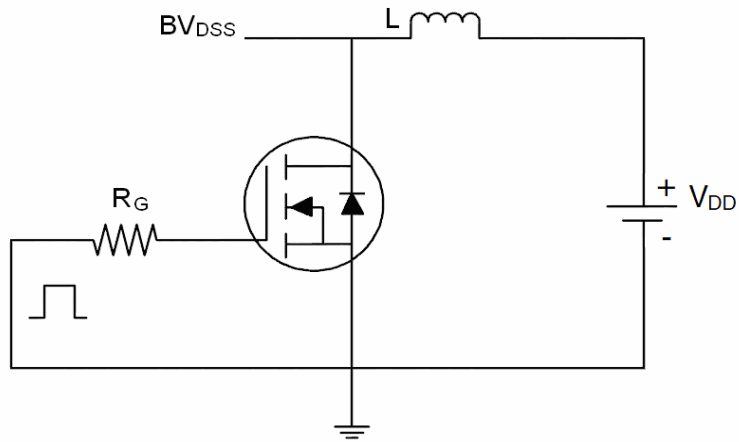
Parameter	Symbol	Condition	Min	Typ	Max	Unit
<b>Off Characteristics</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0V, I_D=250\mu A$	30	33	-	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=30V, V_{GS}=0V$	-	-	1	$\mu A$
Gate-Body Leakage Current	$I_{GSS}$	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	$\pm 100$	nA
<b>On Characteristics (Note 3)</b>						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1	1.8	2.5	V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=8A$		16	19	
		$V_{GS}=4.5V, I_D=6A$	-	19	26	m $\Omega$
Forward Transconductance	$g_{FS}$	$V_{DS}=5V, I_D=8A$	21	-	-	S
<b>Dynamic Characteristics (Note 4)</b>						
Input Capacitance	$C_{iss}$	$V_{DS}=15V, V_{GS}=0V,$ $F=1.0MHz$		1040		PF
Output Capacitance	$C_{oss}$			180		PF
Reverse Transfer Capacitance	$C_{rss}$			110		PF
<b>Switching Characteristics (Note 4)</b>						
Turn-on Delay Time	$t_{d(on)}$	$V_{DS}=15V, I_D=4.5A$ $V_{GS}=10V, R_{GEN}=3\Omega$	-	5.2	-	nS
Turn-on Rise Time	$t_r$		-	4.4	-	nS
Turn-Off Delay Time	$t_{d(off)}$		-	17.3	-	nS
Turn-Off Fall Time	$t_f$		-	3.3	-	nS
Total Gate Charge	$Q_g$	$V_{DS}=15V, I_D=8A,$ $V_{GS}=10V$	-	19.2	-	nC
Gate-Source Charge	$Q_{gs}$		-	2.6	-	nC
Gate-Drain Charge	$Q_{gd}$		-	4.2	-	nC
<b>Drain-Source Diode Characteristics</b>						
Diode Forward Voltage (Note 3)	$V_{SD}$	$V_{GS}=0V, I_S=1.7A$	-	-	1.2	V
Diode Forward Current (Note 2)	$I_S$		-	-	8	A

**Notes:**

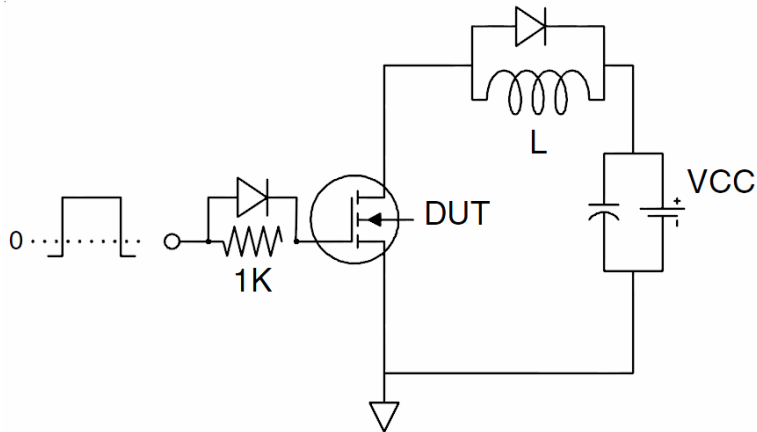
1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board,  $t \leq 10$  sec.
3. Pulse Test: Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2\%$ .
4. Guaranteed by design, not subject to production

### Test circuit

1)  $E_{AS}$  test Circuits



2) Gate charge test Circuit:



3) Switch Time Test Circuit:

