

### DESCRIPTION

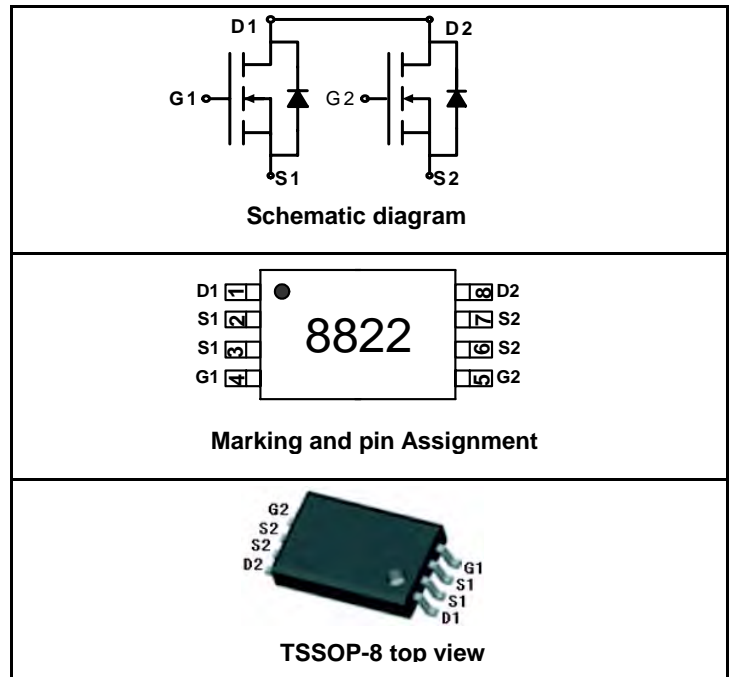
The FTK8822 uses advanced trench technology to provide excellent  $R_{DS(ON)}$ , low gate charge and operation with gate voltages as low as 1.8V. This device is suitable for use as a uni-directional or bi-directional load switch, facilitated by its common-drain configuration.

### GENERAL FEATURES

- $V_{DS} = 20V, I_D = 7A$
- $R_{DS(ON)} < 21m\Omega @ V_{GS}=10V$
- $R_{DS(ON)} < 24m\Omega @ V_{GS}=4.5V$
- $R_{DS(ON)} < 28m\Omega @ V_{GS}=3.6V$
- $R_{DS(ON)} < 32m\Omega @ V_{GS}=2.5V$
- $R_{DS(ON)} < 50m\Omega @ V_{GS}=1.8V$
- High Power and current handing capability
- Lead free product is acquired
- Surface Mount Package

### Application

- Battery protection
- Load switch
- Power management



### PACKAGE MARKING AND ORDERING INFORMATION

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
8822	FTK8822	TSSOP-8	Ø330mm	12mm	3000 units

### ABSOLUTE MAXIMUM RATINGS(TA=25°C unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	$V_{DS}$	20	V
Gate-Source Voltage	$V_{GS}$	±12	V
Drain Current-Continuous@ Current-Pulsed (Note 1)	$I_D$	7	A
	$I_{DM}$	30	A
Maximum Power Dissipation	$P_D$	1.5	W
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 To 150	°C

### THERMAL CHARACTERISTICS

Thermal Resistance, Junction-to-Ambient (Note 2)	$R_{\theta JA}$	83	°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	$BV_{DSS}$	$V_{GS}=0V, I_D=250\mu A$	20			V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=16V, V_{GS}=0V$			1	μA
Gate-Body Leakage Current	$I_{GSS}$	$V_{GS}=\pm 10V, V_{DS}=0V$			±100	nA
<b>ON CHARACTERISTICS (Note 3)</b>						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=1mA$	0.5	0.8	1	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=7A$		16.4	21	mΩ
		$V_{GS}=4.5V, I_D=6.6A$		19	24	
		$V_{GS}=3.6V, I_D=6A$		21.7	28	
		$V_{GS}=2.5V, I_D=5.5A$		25	32	
		$V_{GS}=1.8V, I_D=2A$		36	50	

Forward Transconductance	$g_{FS}$	$V_{DS}=5V, I_D=7A$	24	S
<b>DYNAMIC CHARACTERISTICS (Note4)</b>				
Input Capacitance	$C_{iss}$	$V_{DS}=10V, V_{GS}=0V,$ $F=1.0MHz$	630	PF
Output Capacitance	$C_{oss}$		160	PF
Reverse Transfer Capacitance	$C_{rss}$		135	PF
<b>SWITCHING CHARACTERISTICS (Note 4)</b>				
Turn-on Delay Time	$t_{d(on)}$	$V_{DS}=10V, R_L=1.4\Omega$ $V_{GS}=5V, R_{GEN}=3\Omega$	5.7	nS
Turn-on Rise Time	$t_r$		11.5	nS
Turn-Off Delay Time	$t_{d(off)}$		31.5	nS
Turn-Off Fall Time	$t_f$		9.7	nS
Total Gate Charge	$Q_g$	$V_{DS}=10V, I_D=7A,$ $V_{GS}=4.5V$	9.3	nC
Gate-Source Charge	$Q_{gs}$		0.6	nC
Gate-Drain Charge	$Q_{gd}$		3.6	nC
Body Diode Reverse Recovery Time	$t_{rr}$	$I_F=7A, di/dt=100A/\mu s$	15.2	nS
Body Diode Reverse Recovery Charge	$Q_{rr}$	$I_F=7A, di/dt=100A/\mu s$	6.3	nC
<b>DRAIN-SOURCE DIODE CHARACTERISTICS</b>				
Diode Forward Voltage (Note 3)	$V_{SD}$	$V_{GS}=0V, I_S=1A$	0.7	1 V
Diode Forward Current (Note 2)	$I_S$		2.5	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 testing.

## TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

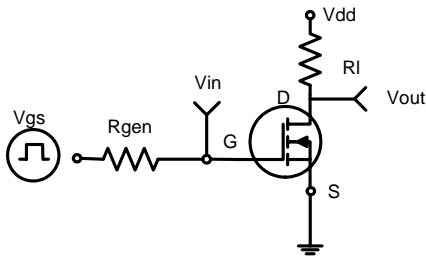


Figure 1: Switching Test Circuit

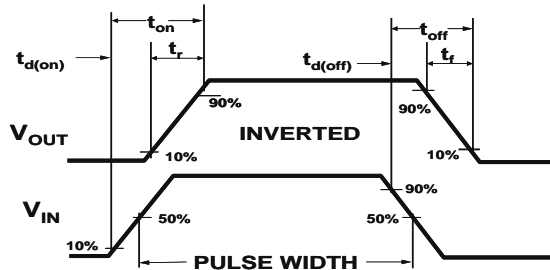


Figure 2: Switching Waveforms

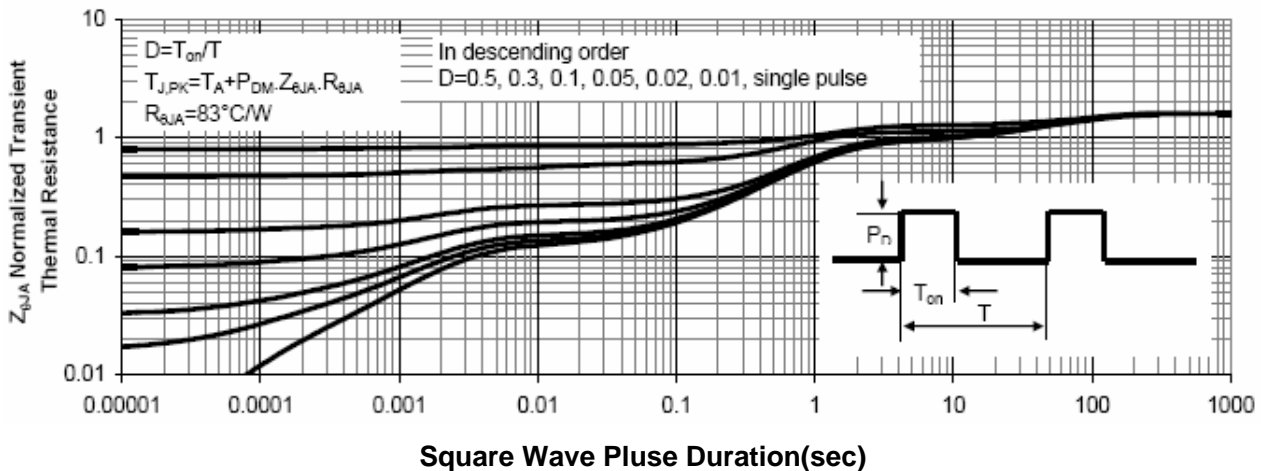
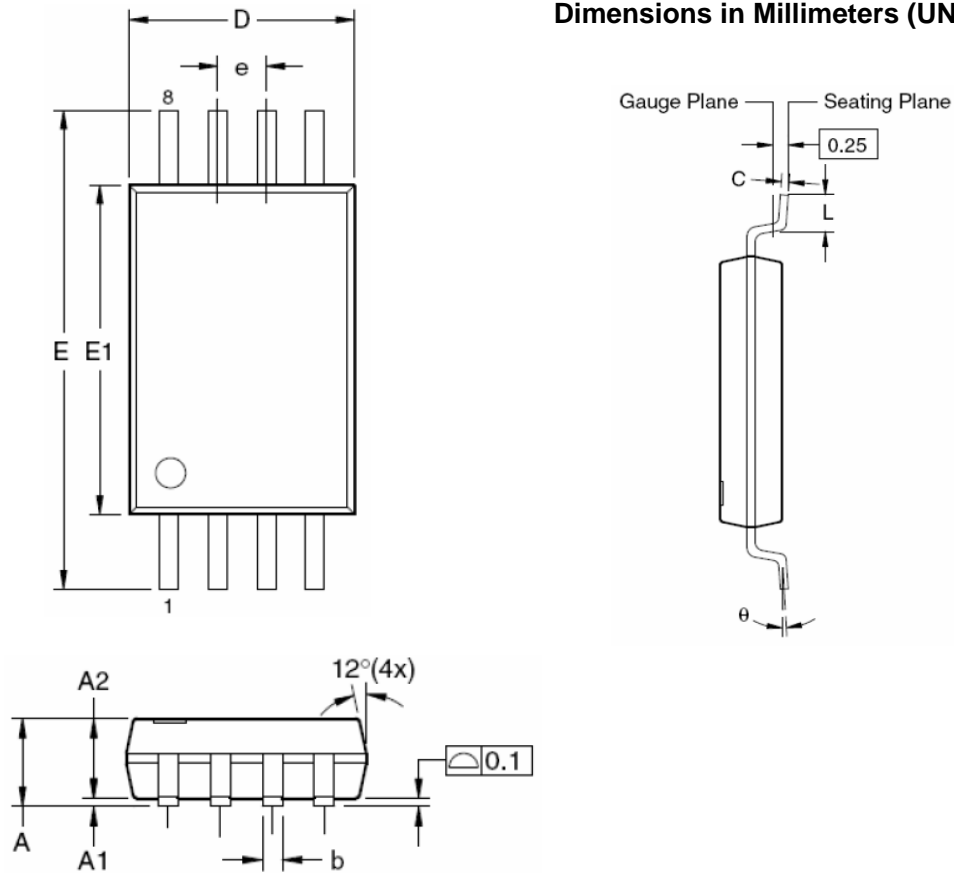


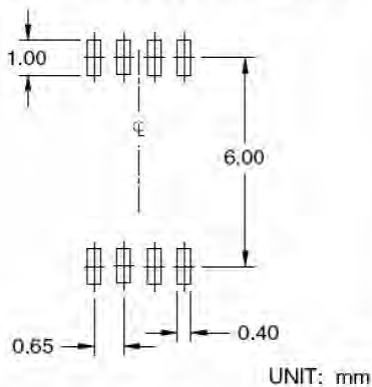
Figure 3: Normalized Maximum Transient Thermal Impedance

## TSSOP-8 PACKAGE INFORMATION

Dimensions in Millimeters (UNIT:mm)



### RECOMMENDED LAND PATTERN



### Dimensions in millimeters

Symbols	Min.	Nom.	Max.
A	—	—	1.20
A1	0.05	—	0.15
A2	0.80	1.00	1.05
b	0.19	—	0.30
C	0.09	—	0.20
D	2.90	3.00	3.10
E	6.40 BSC		
E1	4.30	4.40	4.50
e	0.65 BSC		
L	0.45	0.60	0.75
θ	0°	—	8°

### Dimensions in inches

Symbols	Min.	Nom.	Max.
A	—	—	0.047
A1	0.002	—	0.006
A2	0.031	0.039	0.041
b	0.007	—	0.012
C	0.004	—	0.008
D	0.114	0.118	0.122
E	0.252 BSC		
E1	0.169	0.173	0.177
e	0.026 BSC		
L	0.018	0.024	0.030
θ	0°	—	8°

### NOTES:

1. All dimensions are in millimeters.
2. Dimensions are inclusive of plating
3. Package body sizes exclude mold flash and gate burrs. Mold flash at the non-lead sides should be less than 6 mils.
4. Dimension L is measured in gauge plane.
5. Controlling dimension is millimeter, converted inch dimensions are not necessarily exact.