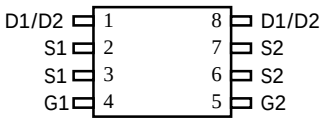
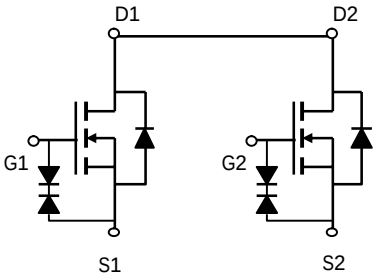
Dual N-Channl Enhancement Mode MOSFET

- 20V/7.5A
- $R_{DS(ON)}$=14mΩ (typ) @VGS=4.5V
  $R_{DS(ON)}$=18mΩ (typ) @VGS=2.5V
- 100% UIS & RG Tested
- Reliableand Rugged
- Lead Freeand Green Devices Available
  (RoHS Compliant)

TSSOP-8
Top View





Applications

- Power Management for Industrial DC/DC Converters

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

Symbol	Parameter		Rating	Unit
Common Ratings				
V_{DSS}	Drain-Source Voltage		20	V
V_{GSS}	Gate-Source Voltage		±12	
I_D	Continuous Drain Current [A]	T_A=25°C	7.5	A
		T_A=70°C	6	
I_{DM}	Pulsed Drain Current [B]	Tc=25°C	30	A
T_{STG}, T_j	Storage Temperature Range		-55 to 150	°C
PD	Power Dissipation [A]	T_A=25°C	1.5	W
		T_A=70°C	1	
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient	t≤10S	64	°C/W
		Steady-State	89	
$R_{\theta JC}$	Thermal Resistance-Junction to Case [C]		53	°C/W

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress rating only and functional device operation is not implied

A: 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°C. The value in any given application depends on the user's specific board design. The current rating is based on the t ≤ 10s thermal resistance rating.
B: Repetitive rating, pulse width limited by junction temperature.
C. The $R_{\theta JA}$ is the sum of the thermal impedence from junction to lead $R_{\theta JL}$ and lead to ambient.

Electrical Characteristics (T_A = 25°C unless otherwise noted)

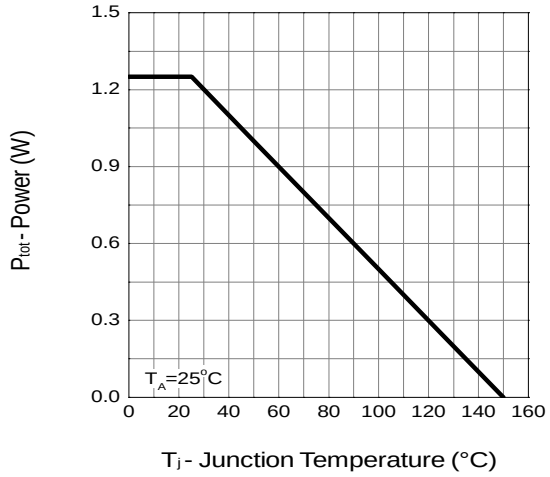
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_{DS}=250μA	20	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} =16V, V_{GS}=0V	-	-	1	μA
		T_J=55°C	-	-	5	
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} =V_{GS}, I_{DS}=250μA	0.4	0.6	1	V
$I_{D(ON)}$	Static Drain-Source On-Resistance	V_{GS}=4.5V,V_{DS}=5V	30			A
I_{GSS}	Gate Leakage Current	V_{GS}=±4.5V, V_{DS}=0V	-	-	±1	uA
		V_{GS}=±12V, V_{DS}=0V	-	-	±10	
$R_{DS(ON)}$	Drain-Source On-state Resistance	V_{GS}=4.5V, I_{DS}=7A	10	14	19	mΩ
		T_J=125°C	16	20	25	
		V_{GS}=4V，I_D=7A	11	15.5	19	
		V_{GS}=3.1V，I_D=6.5A	12	16	20	
		V_{GS}=2.5V，I_D=5.5A	13	18	22	
		V_{GS}=1.8V，I_D=5A	14	20	28	
g_{FS}	Forward Transcondutance	V_{DS}=5V,I_D=7A	-	31	-	S
I_s	Maximum Body-Diode Continuous Current		-	-	2.5	A
Body Diode Characteristics						
V_{SD}	Diode Forward Voltage	I_{SD}=1A, V_{GS}=0V	-	0.7	1.3	V
t_{rr}	Reverse Recovery Time	I_{DS}=7A dI$_{SD}$/dt=100A/μs	-	32	-	ns
Qrr	Reverse Recovery Charge		-	12	-	nC
Dynamic Characteristics						
R_G	Gate Resistance	F=1MHz, Open drain	-	4	-	Ω
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS} =10V, Frequency=1.0MHz	-	1120	-	pF
C_{oss}	Output Capacitance		-	195	-	
C_{rss}	Reverse transfer capacitance		-	155	-	
$t_{d(ON)}$	Turn-on delay Time	V_{GS}=5V ,V_{DS}=10V R_G=3Ω,R_L=1.35Ω,	-	7.2	-	nS
t_r	Turn-on rise Time		-	11	-	
$t_{d(OFF)}$	Turn-off delay Time		-	64	-	
t_f	Turn-off rise Time		-	32	-	
Gate Charge Characteristics						
Q_g	Total Gate Charge	V_{DS} =10V, V_{GS}=4.5V, I_{DS}=7A	-	16	-	nC
Q_{gs}	Gate-Source Charge		-	1.7	-	
Q_{gd}	Gate-Drain Charge		-	6.8	-	

Note: 1. Pulse test: pulse width<=300uS, duty cycle<=2%

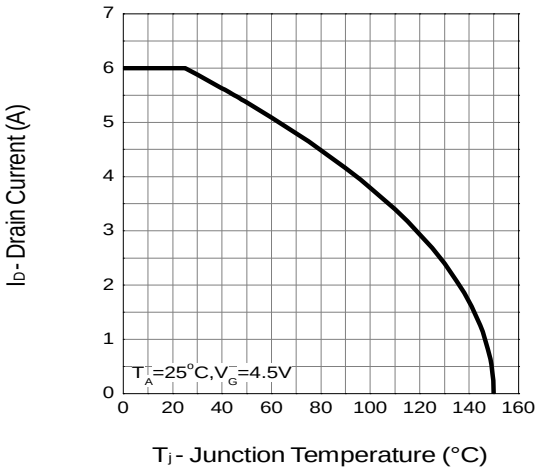
2.Static parameters are based on package level with recommended wire bonding

TYPICAL CHARACTERISTICS (25℃ Unless Note)

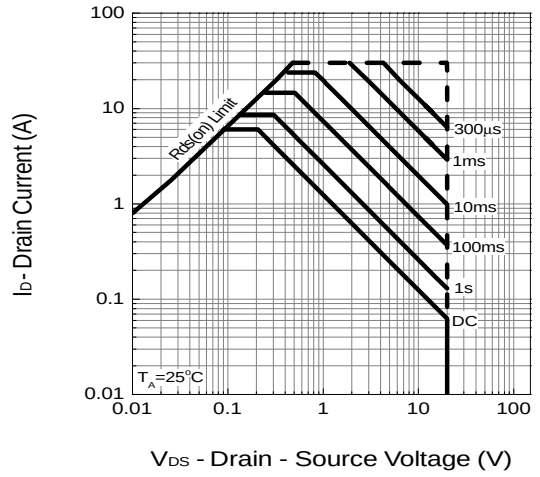
Power Dissipation



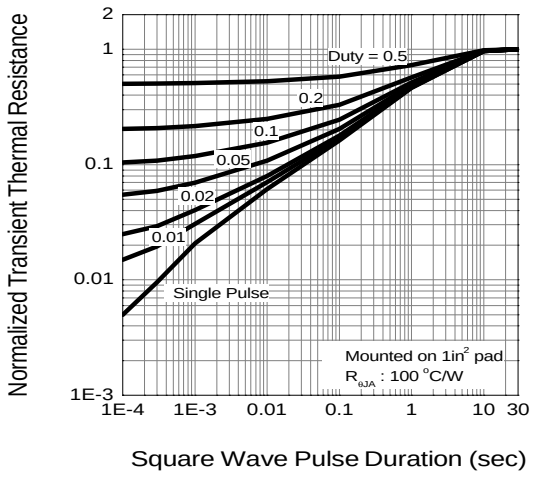
Drain Current



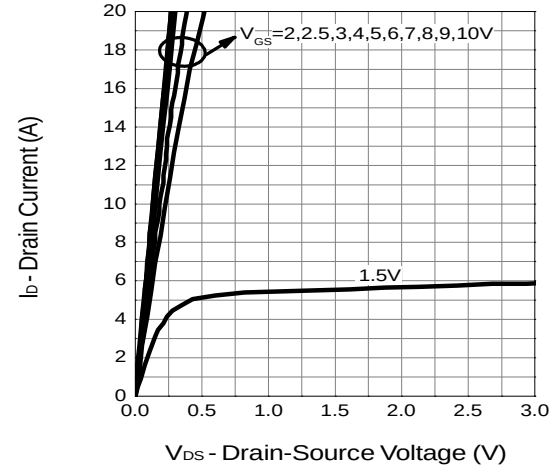
Safe Operation Area



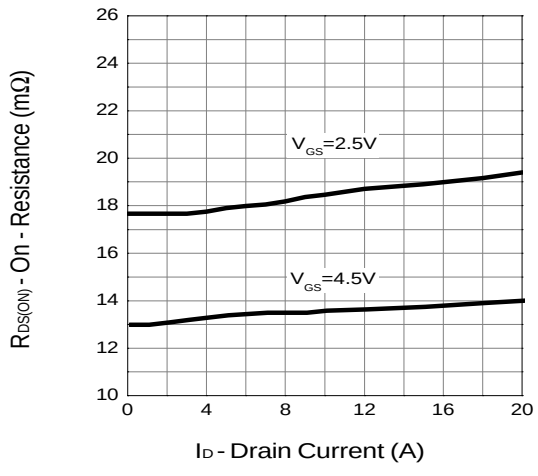
Thermal Transient Impedance



Output Characteristics

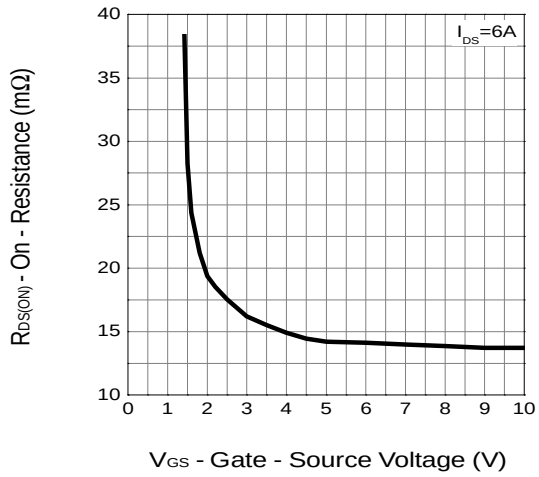


Drain-Source On Resistance

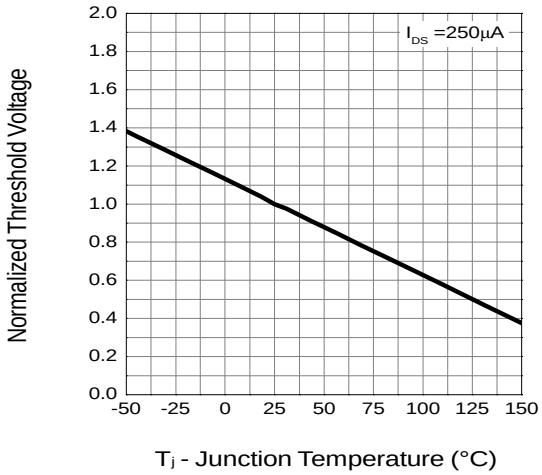


TYPICAL CHARACTERISTICS (continuous)

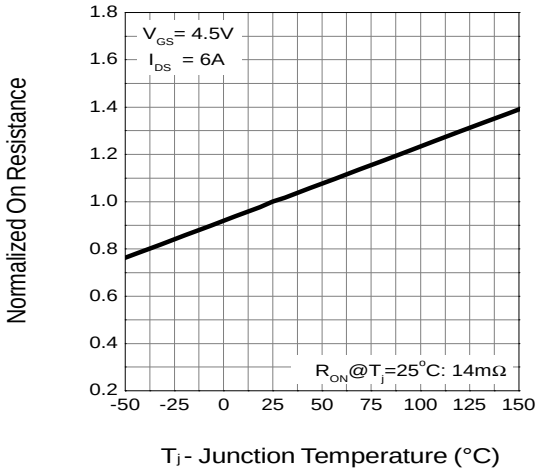
Gate-Source On Resistance



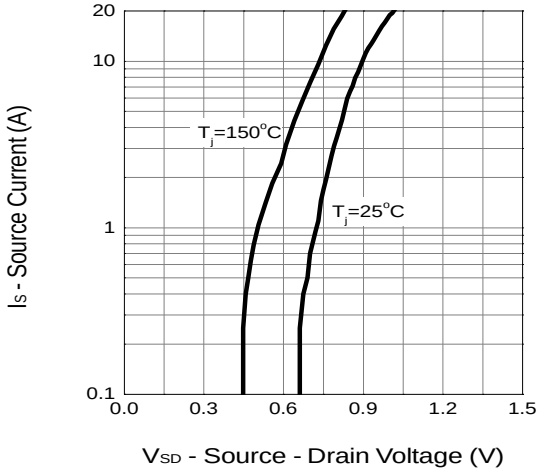
Gate Threshold Voltage



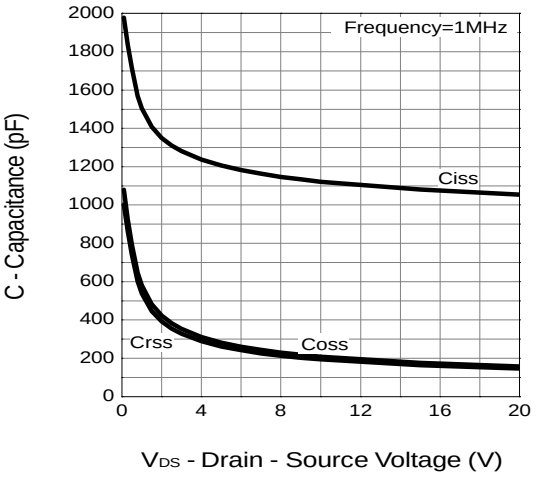
Drain-Source On Resistance



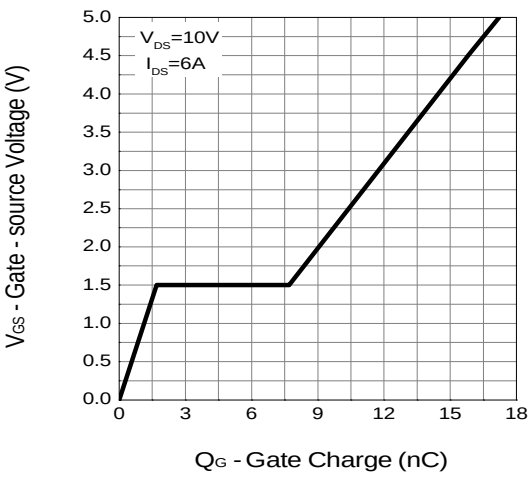
Source-Drain Diode Forward



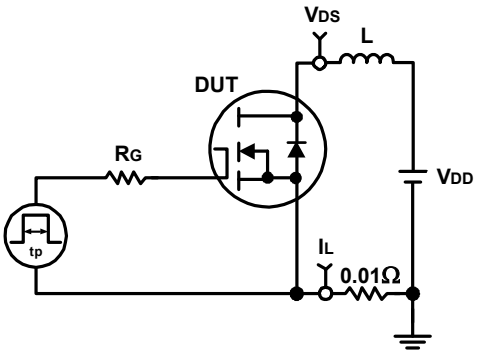
Capacitance

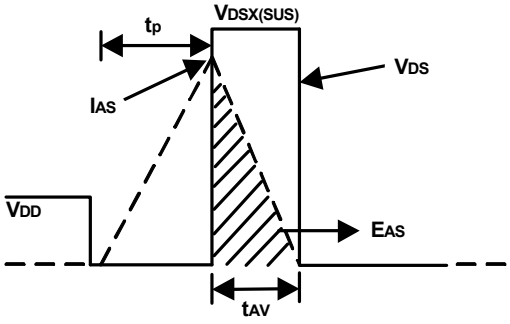


Gate Charge

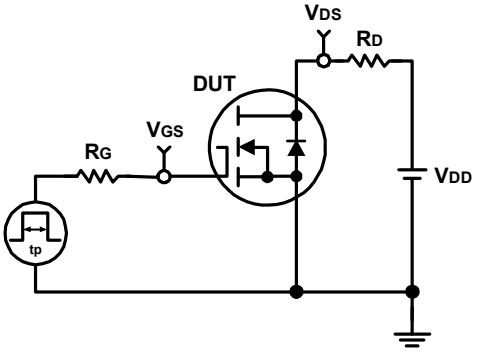


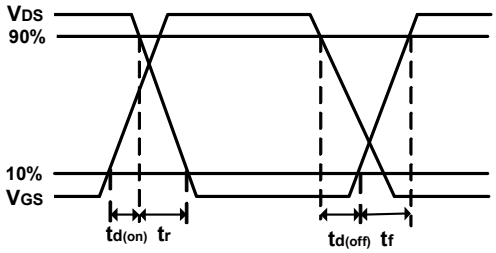
Avalanche Test Circuit and Waveforms



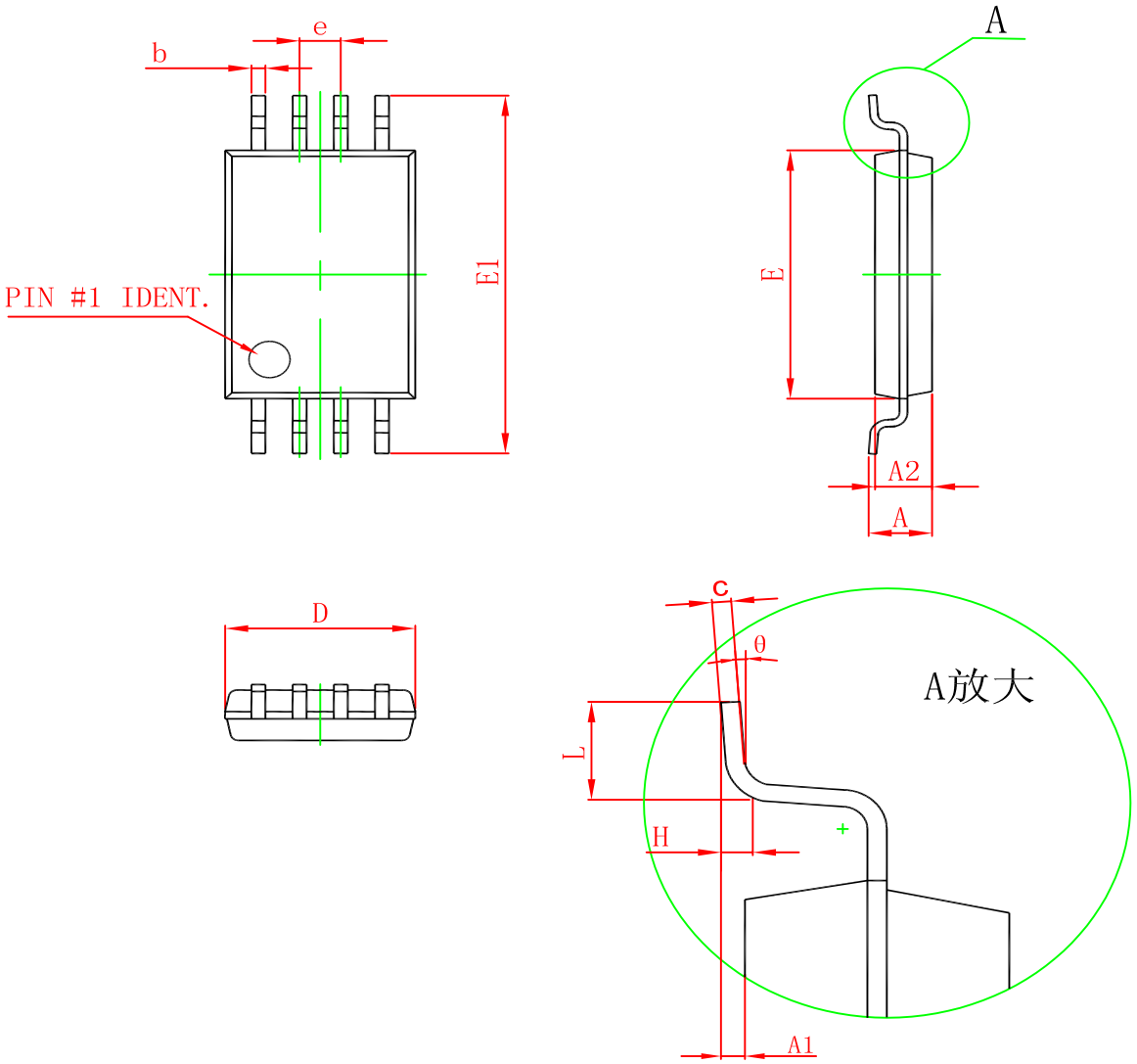


Switching Time Test Circuit and Waveforms





TSSOP8L PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
D	2.900	3.100	0.114	0.122
E	4.300	4.500	0.169	0.177
b	0.190	0.300	0.007	0.012
c	0.090	0.200	0.004	0.008
E1	6.250	6.550	0.246	0.258
A		1.100		0.043
A2	0.800	1.000	0.031	0.039
A1	0.020	0.150	0.001	0.006
e	0.65 (BSC)		0.026 (BSC)	
L	0.500	0.700	0.020	0.028
H	0.25 (TYP)		0.01 (TYP)	
θ	1°	7°	1°	7°