



YOUSHANG SEMICONDUCTOR

设计研发新型功率器件

各类小信号开关

中低压及高压大电流等场效应管

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企业微信二维码



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Features

- Low On-Resistance
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage

Mechanical Data

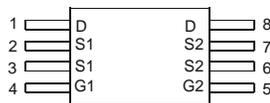
- Case: TSSOP-8L
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminal Connections: See Diagram Below
- Marking Information: See Page 4
- Ordering Information: See Page 4
- Weight: 0.039 grams (approximate)



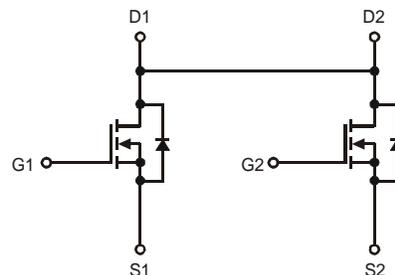
TOP VIEW



BOTTOM VIEW



Top View
Pin Configuration



Internal Schematic

Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic			Symbol	Value	Unit
Drain-Source Voltage			V_{DSS}	20	V
Gate-Source Voltage			V_{GSS}	± 8	V
Continuous Drain Current (Note 1)	Steady State	$T_A = 25^\circ\text{C}$	I_D	4.9	A
		$T_A = 70^\circ\text{C}$		3.9	
Pulsed Drain Current (Note 2)			I_{DM}	31	A

Thermal Characteristics

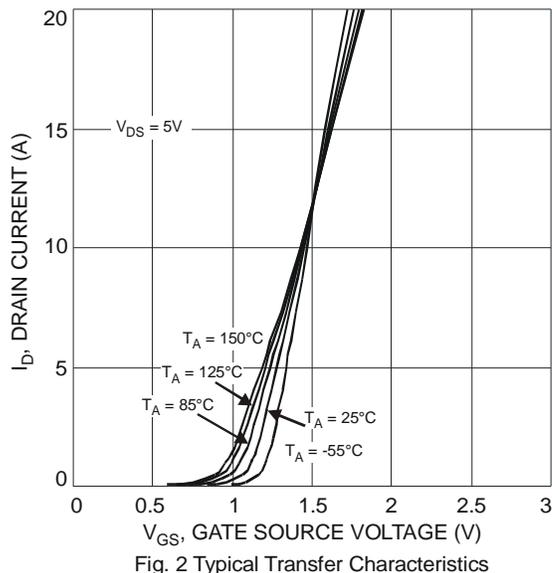
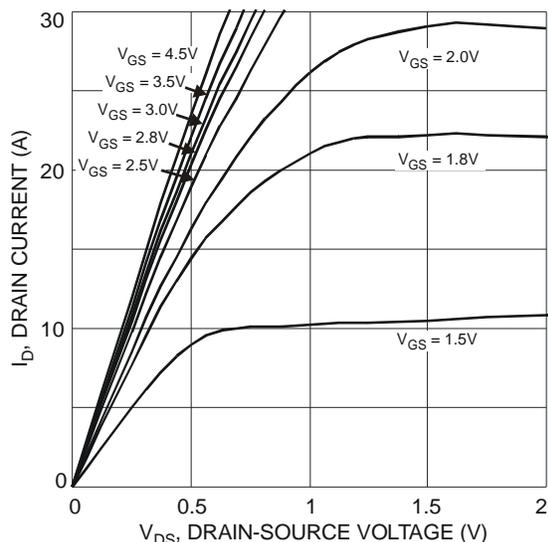
Characteristic	Symbol	Value	Unit
Power Dissipation (Note 1)	P_D	0.87	W
Thermal Resistance, Junction to Ambient @ $T_A = 25^\circ\text{C}$	$R_{\theta JA}$	143	$^\circ\text{C}/\text{W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

- Notes:
1. Device mounted on FR-4 PCB with minimum recommended pad layout.
 2. Repetitive rating, pulse width limited by junction temperature.
 3. No purposefully added lead.

Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 5)						
Drain-Source Breakdown Voltage	BV_{DSS}	20	-	-	V	$V_{GS} = 0V, I_D = 250\mu A$
Zero Gate Voltage Drain Current	I_{DSS}	-	-	1.0	μA	$V_{DS} = 20V, V_{GS} = 0V$
Gate-Source Leakage	I_{GSS}	-	-	± 100	nA	$V_{GS} = \pm 8V, V_{DS} = 0V$
ON CHARACTERISTICS (Note 5)						
Gate Threshold Voltage	$V_{GS(th)}$	0.5	-	0.9	V	$V_{DS} = V_{GS}, I_D = 250\mu A$
Static Drain-Source On-Resistance	$R_{DS(on)}$	-	19	25	m Ω	$V_{GS} = 4.5V, I_D = 8.2A$
			22	29		$V_{GS} = 2.5V, I_D = 3.3A$
			28	37		$V_{GS} = 1.8V, I_D = 2.0A$
Forward Transfer Admittance	$ Y_{fs} $	-	7	-	S	$V_{DS} = 10V, I_D = 4A$
Diodes Forward Voltage	V_{SD}	-	0.7	0.9	V	$I_S = 2.25A, V_{GS} = 0V$
DYNAMIC CHARACTERISTICS (Note 6)						
Input Capacitance	C_{iss}	-	841	-	pF	$V_{DS} = 10V, V_{GS} = 0V,$ $f = 1.0MHz$
Output Capacitance	C_{oss}	-	88	-	pF	
Reverse Transfer Capacitance	C_{rss}	-	81	-	pF	
Gate Resistance	R_g	-	1.24	-	Ω	$V_{DS} = 0V, V_{GS} = 0V, f = 1MHz$
SWITCHING CHARACTERISTICS						
Total Gate Charge	Q_g	-	9.6	-	nC	$V_{GS} = 4.5V, V_{DS} = 10V,$ $I_D = 8.2A$
Gate-Source Charge	Q_{gs}	-	1.4	-	nC	
Gate-Drain Charge	Q_{gd}	-	2.1	-	nC	
Turn-On Delay Time	$t_{D(on)}$	-	7.8	-	ns	$V_{DD} = 10V, V_{GS} = 4.5V,$ $R_L = 10\Omega, R_G = 6\Omega$
Turn-On Rise Time	t_r	-	21.1	-	ns	
Turn-Off Delay Time	$t_{D(off)}$	-	38.6	-	ns	
Turn-Off Fall Time	t_f	-	10.1	-	ns	

Notes: 5. Short duration pulse test used to minimize self-heating effects.
 6. Guaranteed by design. Not subject to production testing.



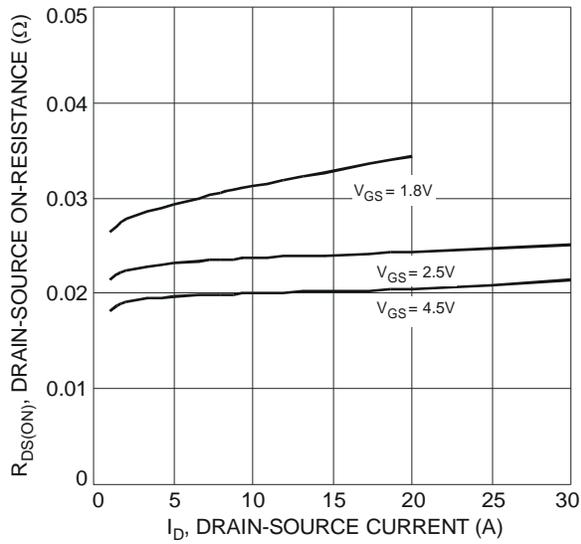


Fig. 3 Typical On-Resistance vs. Drain Current and Gate Voltage

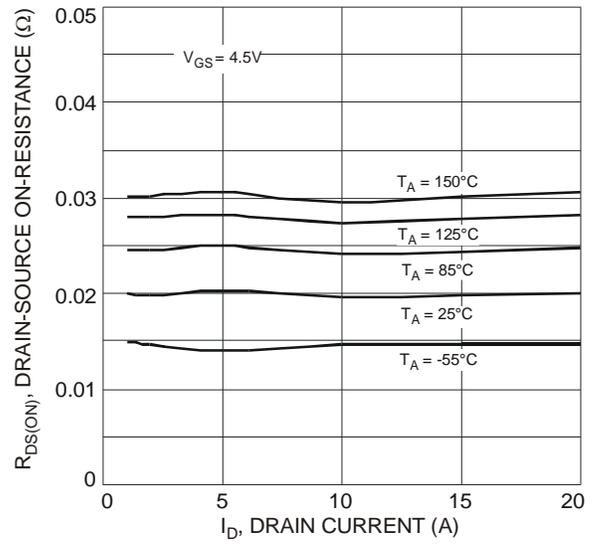


Fig. 4 Typical Drain-Source On-Resistance vs. Drain Current and Temperature

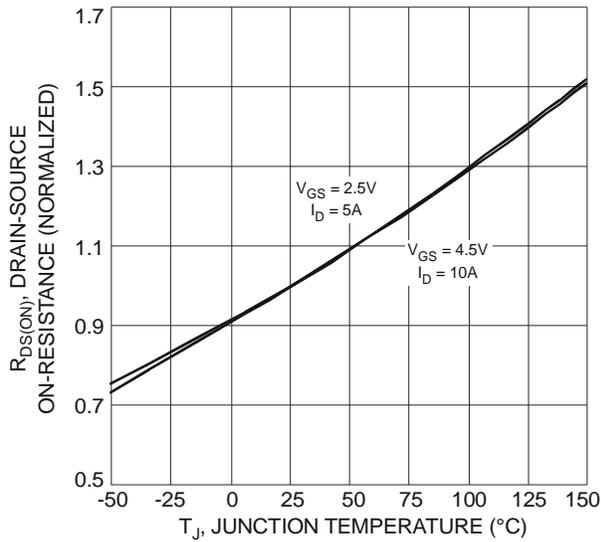


Fig. 5 On-Resistance Variation with Temperature

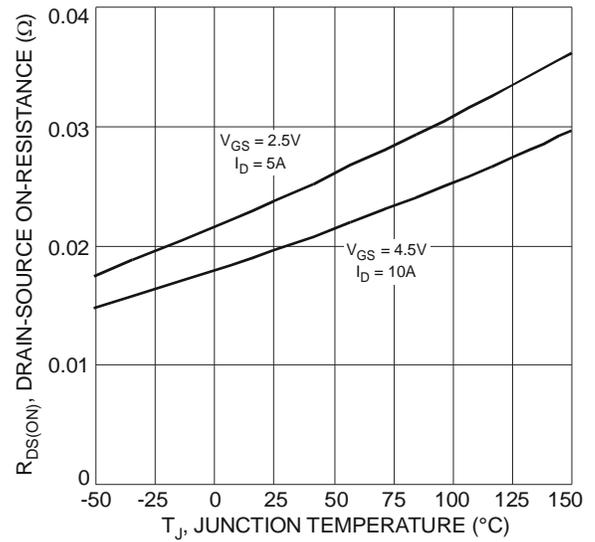


Fig. 6 On-Resistance Variation with Temperature

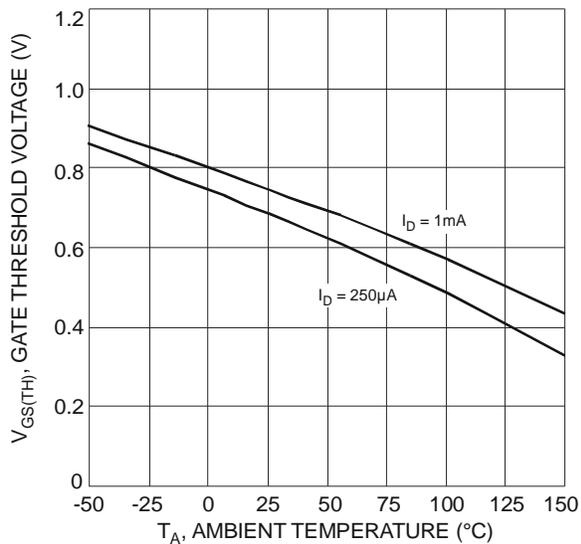


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

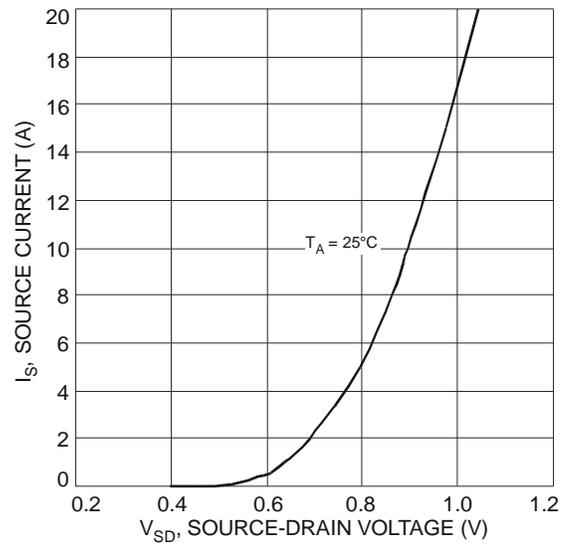


Fig. 8 Diode Forward Voltage vs. Current

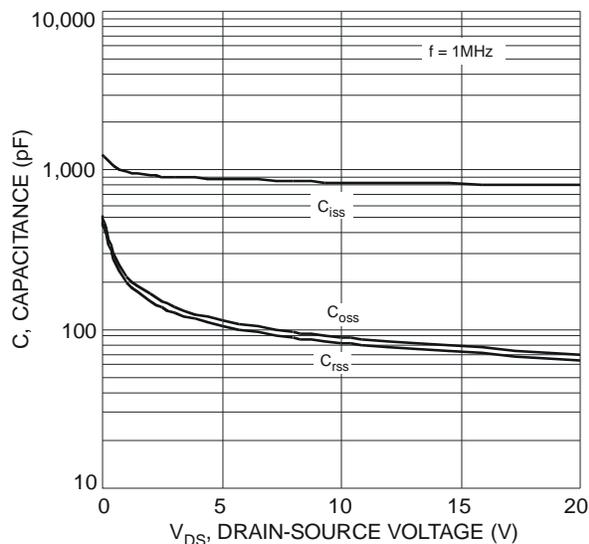


Fig. 9 Typical Capacitance

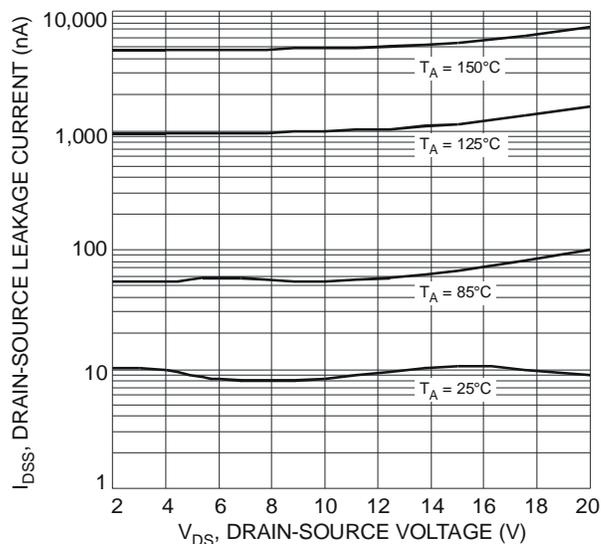


Fig. 10 Typical Drain-Source Leakage Current vs. Drain-Source Voltage

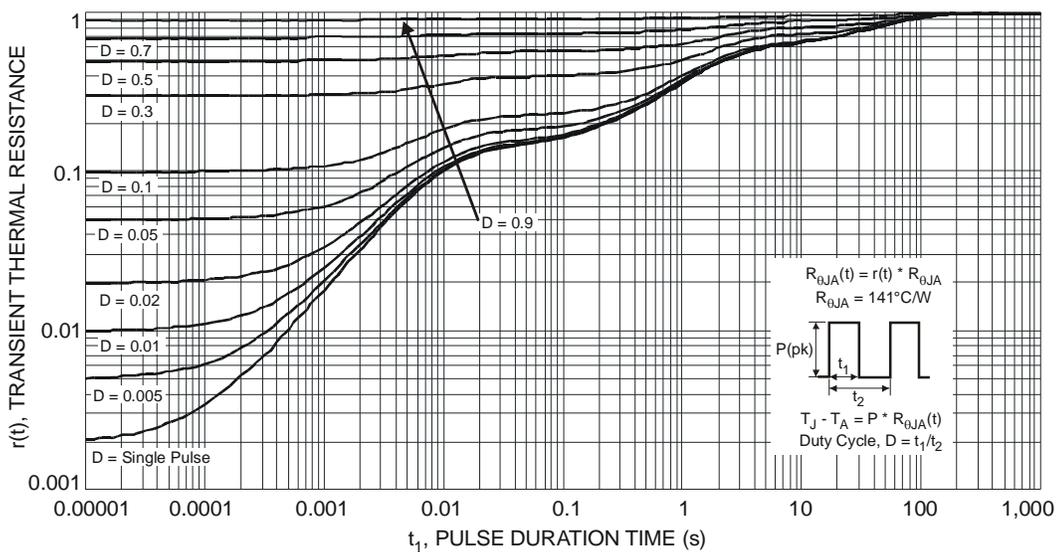
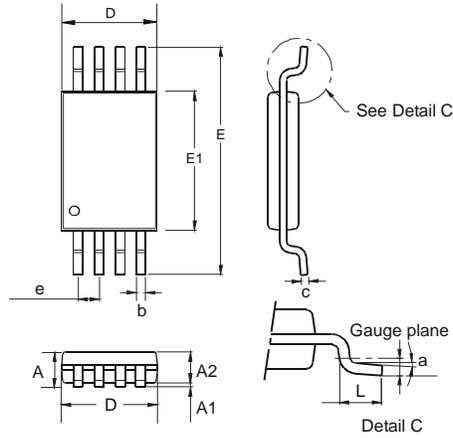


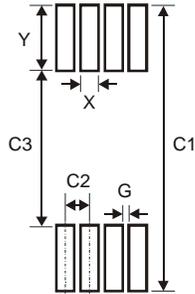
Fig. 11 Transient Thermal Response

Package Outline Dimensions



TSSOP-8L			
Dim	Min	Max	Typ
a	0.09	–	–
A	–	1.20	–
A1	0.05	0.15	–
A2	0.825	1.025	0.925
b	0.19	0.30	–
c	0.09	0.20	–
D	2.90	3.10	3.025
e	–	–	0.65
E	–	–	6.40
E1	4.30	4.50	4.425
L	0.45	0.75	0.60
All Dimensions in mm			

Suggested Pad Layout



Dimensions	Value (in mm)
X	0.45
Y	1.78
C1	7.72
C2	0.65
C3	4.16
G	0.20