优尚

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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Features

- Low On-Resistance
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- ESD Protected Up To 2KV

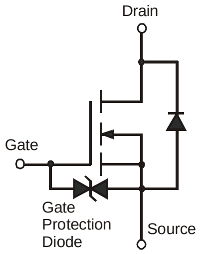
Mechanical Data

- Case: SC-59
- Case Material - Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Marking Information: See Page 2
- Ordering Information: See Page 2
- Weight: 0.014 grams (approximate)

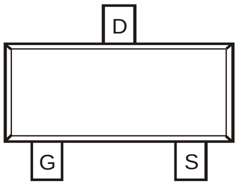
SC-59

ESD PROTECTED TO 2kV

TOP VIEW



EQUIVALENT CIRCUIT



TOP VIEW
Pin Out Configuration

Electrical Characteristics @T_A = 25°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 = 250μA
Zero Gate Voltage Drain Current T_J = 25°C	I_{DSS}	-	-	1.0	μA	V_{DS} = 20V, V_{GS} = 0V
Gate-Source Leakage	I_{GSS}	-	-	±10	μA	V_{GS} = ±12V, V_{DS} = 0V
ON CHARACTERISTICS (Note 5)						
Gate Threshold Voltage	$V_{GS(th)}$	0.5	1.0	1.5	V	V_{DS} = V_{GS}, I_D = 250μA
Static Drain-Source On-Resistance	$R_{DS\ (ON)}$	-	13	20	mΩ	V_{GS} = 4.5V, I_D = 9.4A
			18	28		V_{GS} = 2.5V, I_D = 8.3A
Forward Transfer Admittance	$\lvert Y_{fs} \rvert$	-	16	-	S	V_{DS} = 5V, I_D = 9.4A
Diode Forward Voltage	V_{SD}	-	0.7	1.2	V	V_{GS} = 0V, I_S = 1.3A
DYNAMIC CHARACTERISTICS (Note 6)						
Input Capacitance	C_{iss}	-	1149	-	pF	V_{DS} = 10V, V_{GS} = 0V, f = 1.0MHz
Output Capacitance	C_{oss}	-	157	-	pF	
Reverse Transfer Capacitance	C_{rss}	-	142	-	pF	
Gate Resistance	R_g	-	1.51	-	Ω	V_{DS} = 0V, V_{GS} = 0V, f = 1MHz
Total Gate Charge	Q_g	-	11.6	-	nC	V_{GS} = 4.5V, V_{DS} = 10V, I_D = 9.4A
Gate-Source Charge	Q_{gs}	-	2.7	-	nC	
Gate-Drain Charge	Q_{gd}	-	3.4	-	nC	
Turn-On Delay Time	$t_{D(on)}$	-	11.67	-	ns	V_{DD} = 10V, V_{GS} = 4.5V, R_{GEN} = 6Ω, I_D = 1A
Turn-On Rise Time	t_r	-	12.49	-	ns	
Turn-Off Delay Time	$t_{D(off)}$	-	35.89	-	ns	
Turn-Off Fall Time	t_f	-	12.33	-	ns	

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

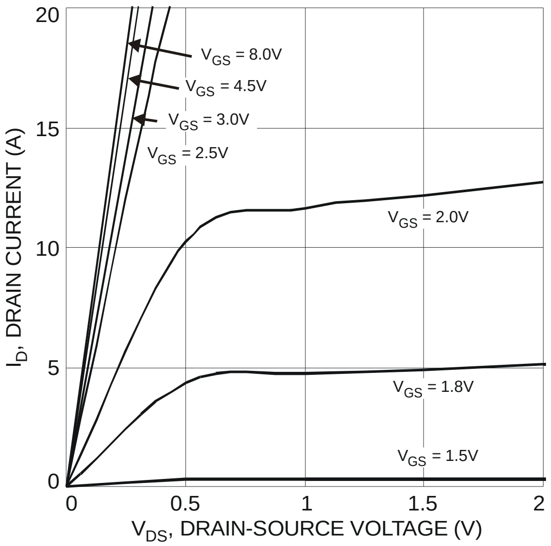


Fig. 1 Typical Output Characteristics

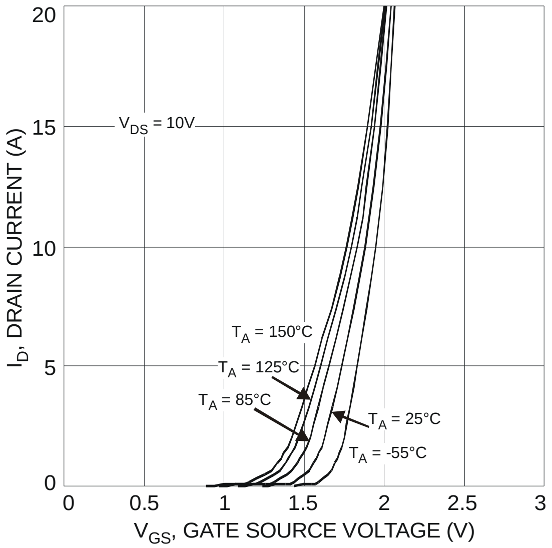


Fig. 2 Typical Transfer Characteristics

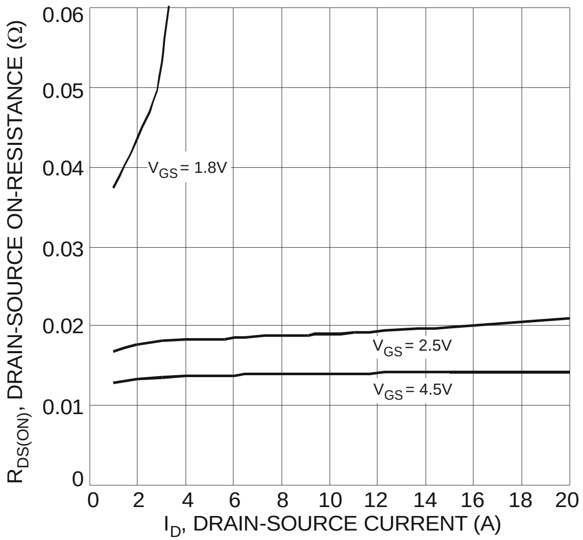


Fig. 3 Typical On-Resistance vs. Drain Current and Gate Voltage

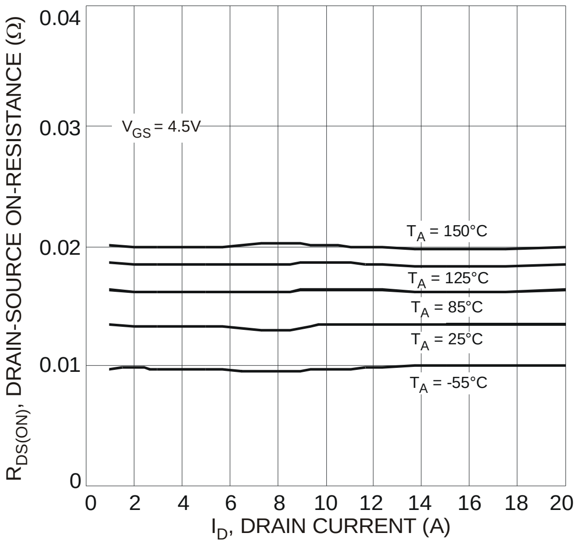


Fig. 4 Typical Drain-Source On-Resistance vs. Drain Current and Temperature

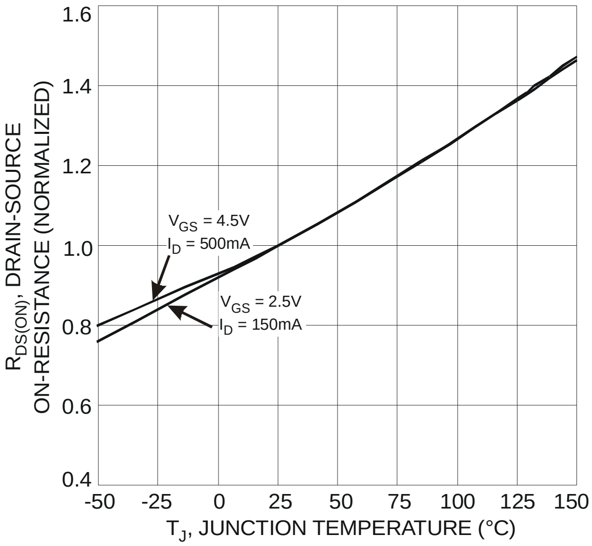


Fig. 5 On-Resistance Variation with Temperature

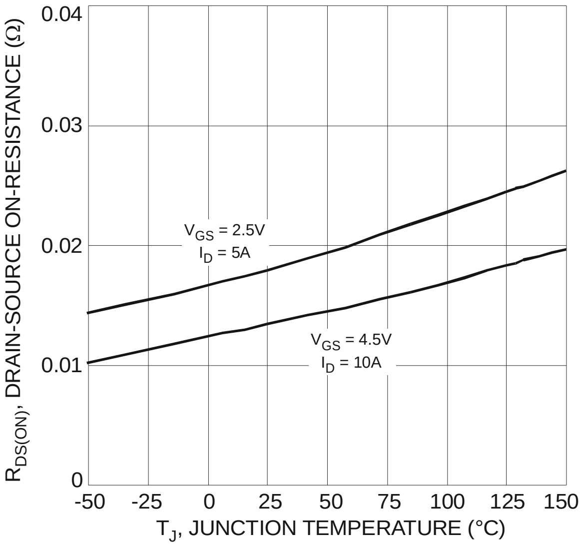


Fig. 6 On-Resistance Variation with Temperature

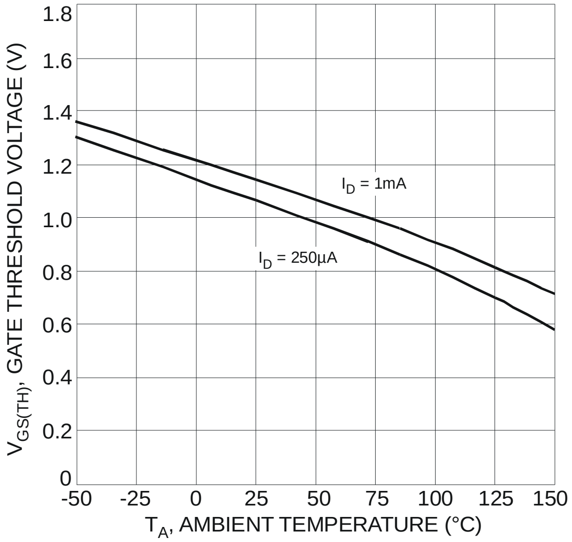


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

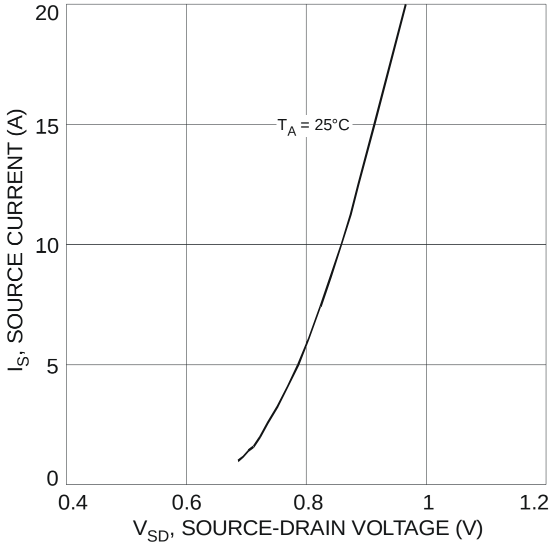


Fig. 8 Diode Forward Voltage vs. Current

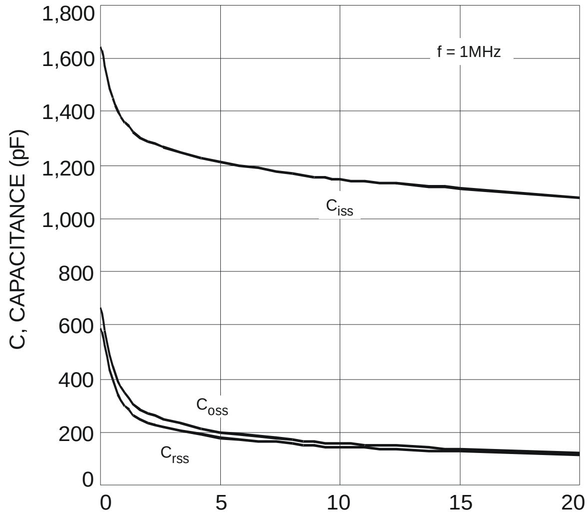


Fig. 9 Typical Capacitance

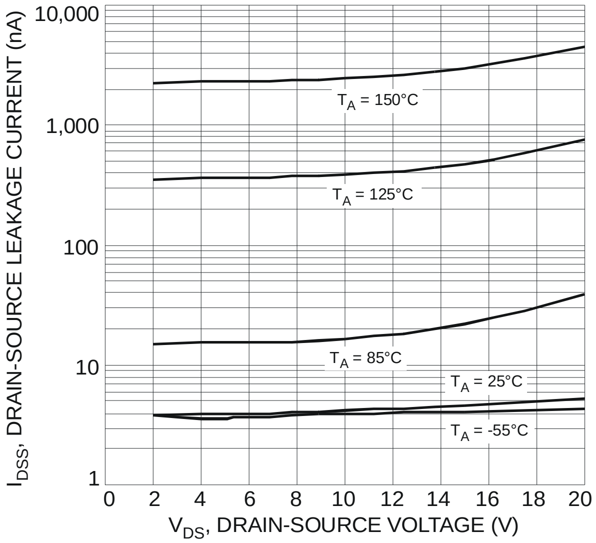


Fig. 10 Typical Drain-Source Leakage Current
vs. Drain-Source Voltage

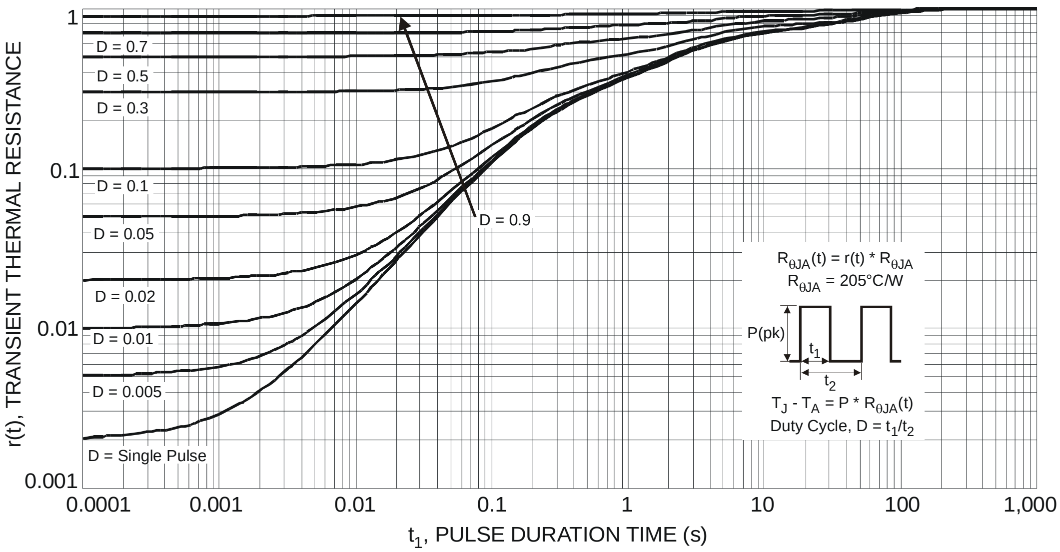
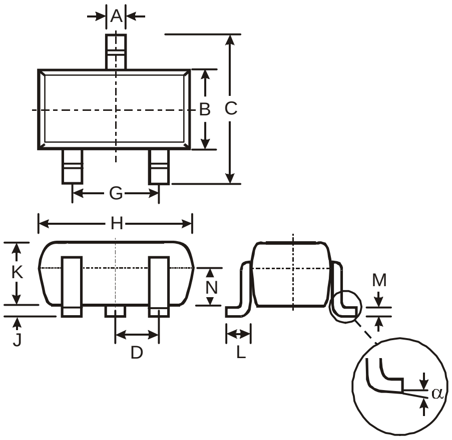


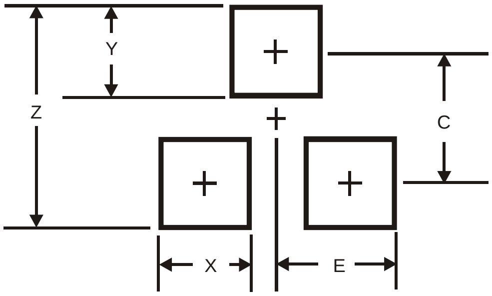
Fig. 11 Transient Thermal Response

Package Outline Dimensions



SC-59			
Dim	**Min**	**Max**	**Typ**
A	0.35	0.50	0.38
B	1.50	1.70	1.60
C	2.70	3.00	2.80
D	-	-	0.95
G	-	-	1.90
H	2.90	3.10	3.00
J	0.013	0.10	0.05
K	1.00	1.30	1.10
L	0.35	0.55	0.40
M	0.10	0.20	0.15
N	0.70	0.80	0.75
α	0°	8°	-
All Dimensions in mm			

Suggested Pad Layout



Dimensions	Value (in mm)
Z	3.4
X	0.8
Y	1.0
C	2.4
E	1.35