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

0755-83047638
ysbdt@szyoushang.cn
www.szyoushang.cn

企业微信二维码　企业QQ二维码

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)\ max}$	I_D T_A = +25°C
30V	30mΩ @ V_{GS} = 10V	6A
	42mΩ @ V_{GS} = 4.5V	5A

Features and Benefits

- Low Input Capacitance
- Low On-Resistance
- Fast Switching Speed

Description

This new generation MOSFET has been designed to minimize the on-state resistance ($R_{DS(on)}$) and yet maintain superior switching performance, making it ideal for high efficiency power management applications.

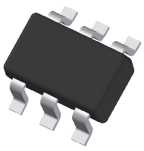
Applications

- DC-DC Converters
- Power Management Functions
- Backlighting

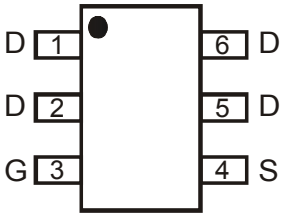
Mechanical Data

- Case: TSOT26
- Case Material: Molded Plastic, “Green” Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: See Diagram
- Terminals: Finish – Tin Finish annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208 e3
- Weight: 0.013 grams (approximate)

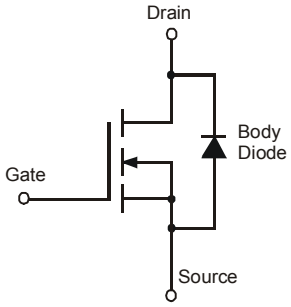
TSOT26



Top View



Top View
Pin Configuration



Equivalent Circuit

Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic			Symbol	Value	Units
Drain-Source Voltage			V_{DSS}	30	V
Gate-Source Voltage			V_{GSS}	±20	V
Continuous Drain Current (Note 5) V_{GS} = 10V	Steady State	T_A = +25°C T_A = +70°C	I_D	6.0 4.8	A
	t<10s	T_A = +25°C T_A = +70°C	I_D	7.5 5.9	A
Continuous Drain Current (Note 5) V_{GS} = 4.5V	Steady State	T_A = +25°C T_A = +70°C	I_D	5.0 4.0	A
	t<10s	T_A = +25°C T_A = +70°C	I_D	6 4.8	A
Maximum Body Diode Forward Current (Note 5)			I_S	2	A
Pulsed Drain Current (10μs pulse, duty cycle = 1%)			I_{DM}	31	A

Thermal Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic		Symbol	Value	Units
Total Power Dissipation (Note 5)	T_A = +25°C	P_D	1.75	W
	T_A = +70°C		1.1	
Thermal Resistance, Junction to Ambient (Note 5)	Steady state	$R_{\theta JA}$	72	°C/W
	t<10s		50	
Thermal Resistance, Junction to Case (Note 5)		$R_{\theta JC}$	23	
Operating and Storage Temperature Range		T_J, T_{STG}	-55 to +150	°C

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 6)						
Drain-Source Breakdown Voltage	BV_{DSS}	30	—	—	V	V_{GS} = 0V, I_D = 250μA
Zero Gate Voltage Drain Current	I_{DSS}	—	—	1	μA	V_{DS} = 30V, V_{GS} = 0V
Gate-Source Leakage	I_{GSS}	—	—	±100	nA	V_{GS} = ±20V, V_{DS} = 0V
ON CHARACTERISTICS (Note 6)						
Gate Threshold Voltage	$V_{GS(th)}$	1	1.5	2	V	V_{DS} = V_{GS}, I_D = 250μA
Static Drain-Source On-Resistance	$R_{DS(ON)}$	—	22	30	mΩ	V_{GS} = 10V, I_D = 7A
		—	32	42		V_{GS} = 4.5V, I_D = 5.6A
Forward Transfer Admittance	$\|Y_{fs}\|$	—	10	—	S	V_{DS} = 5V, I_D = 7A
Diode Forward Voltage	V_{SD}	—	0.75	1.0	V	V_{GS} = 0V, I_S = 1A
DYNAMIC CHARACTERISTICS (Note 7)						
Input Capacitance	C_{iss}	—	498	—	pF	V_{DS} = 15V, V_{GS} = 0V f = 1.0MHz
Output Capacitance	C_{oss}	—	52	—		
Reverse Transfer Capacitance	C_{rss}	—	45	—		
Gate Resistance	R_G	—	2.4	—	Ω	V_{DS} = 0V, V_{GS} = 0V, f = 1.0MHz
Total Gate Charge	Q_g	—	11.4	—	nC	V_{GS} = 10V, V_{DS} = 15V, I_D = 5.8A
Gate-Source Charge	Q_{gs}	—	1.4	—		
Gate-Drain Charge	Q_{gd}	—	2	—		
Turn-On Delay Time	$t_{D(on)}$	—	3.4	—	nS	V_{DD} = 15V, V_{GS} = 10V, R_L = 2.6Ω, R_G = 3Ω
Turn-On Rise Time	t_r	—	6.2	—		
Turn-Off Delay Time	$t_{D(off)}$	—	13.9	—		
Turn-Off Fall Time	t_f	—	2.8	—		

Notes: 5. Device mounted on FR-4 substrate PC board, 2oz copper, with thermal vias to bottom layer 1inch square copper plate.
6. Short duration pulse test used to minimize self-heating effect.
7. Guaranteed by design. Not subject to production testing.

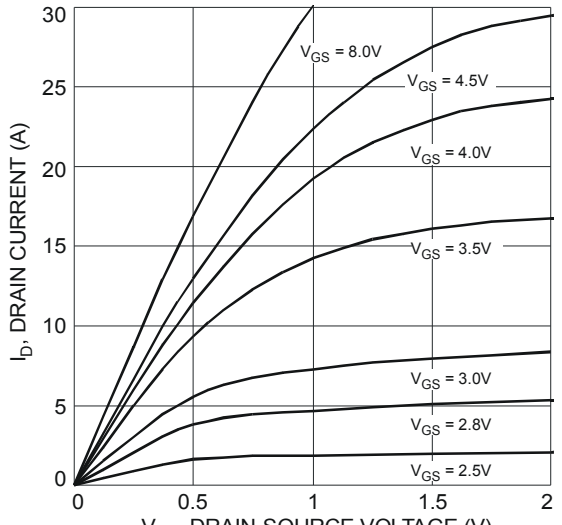


Fig. 1 Typical Output Characteristics

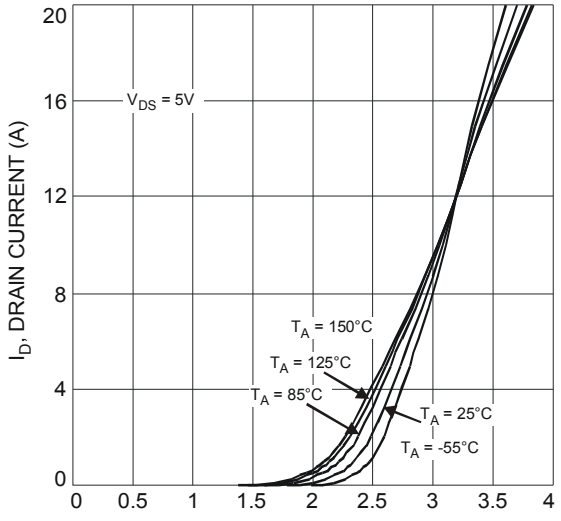


Fig. 2 Typical Transfer Characteristics

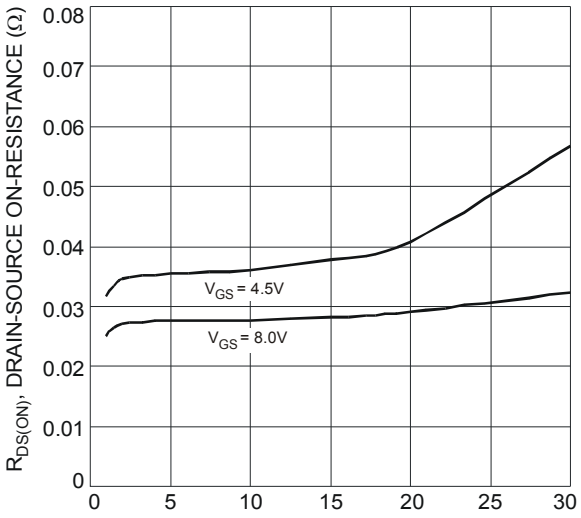


Fig. 3 Typical On-Resistance
vs. Drain Current and Gate Voltage

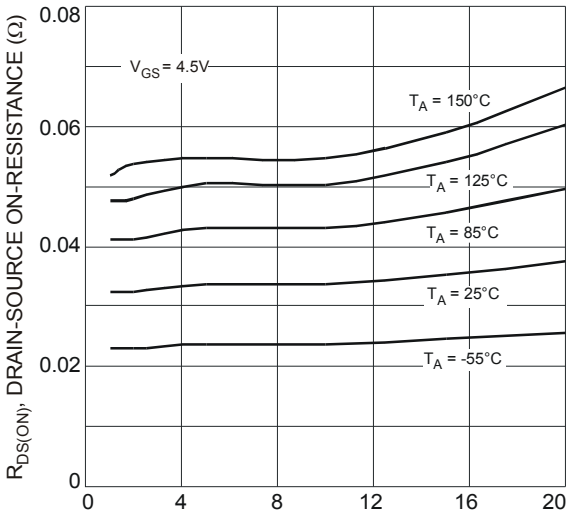


Fig. 4 Typical Drain-Source On-Resistance
vs. Drain Current and Temperature

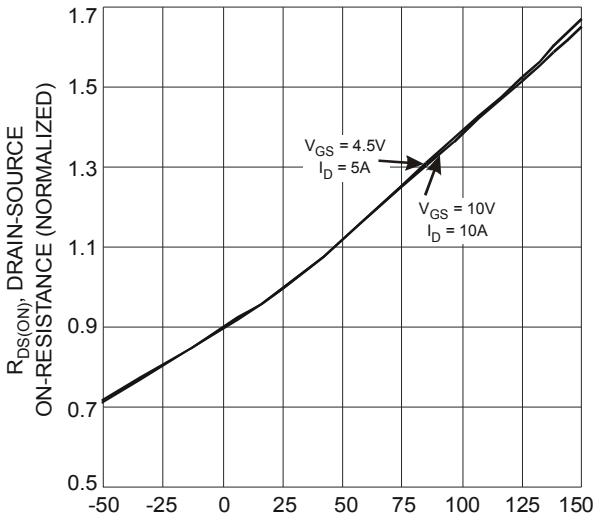


Fig. 5 On-Resistance Variation with Temperature

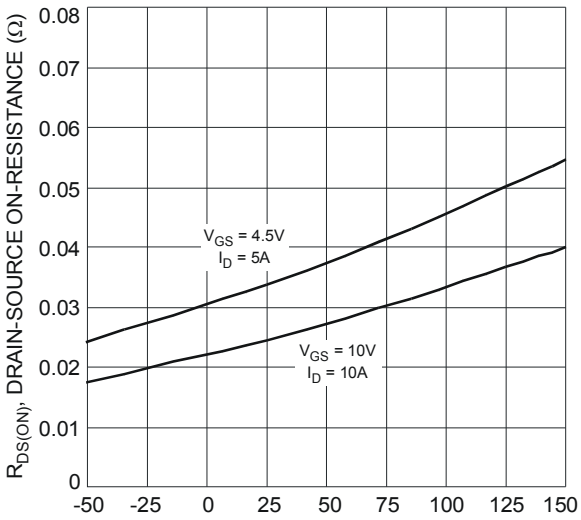


Fig. 6 On-Resistance Variation with Temperature

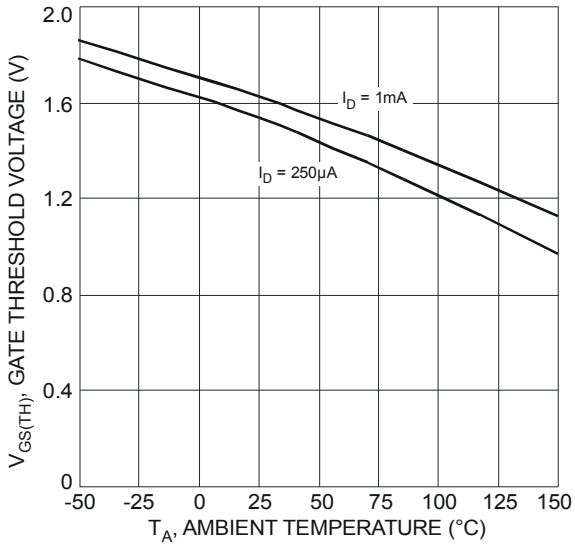


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

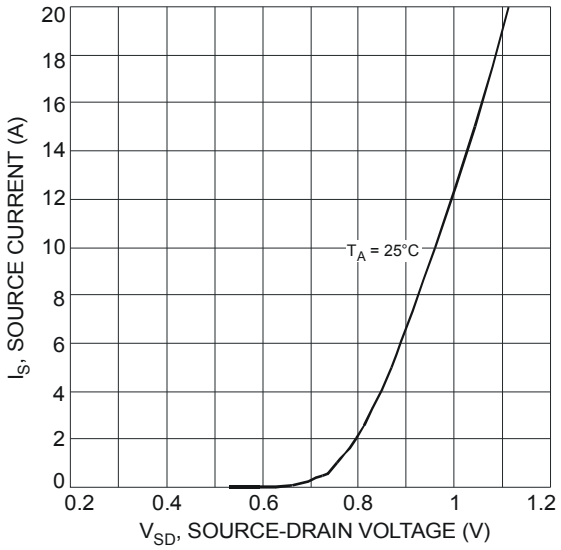


Fig. 8 Diode Forward Voltage vs. Current

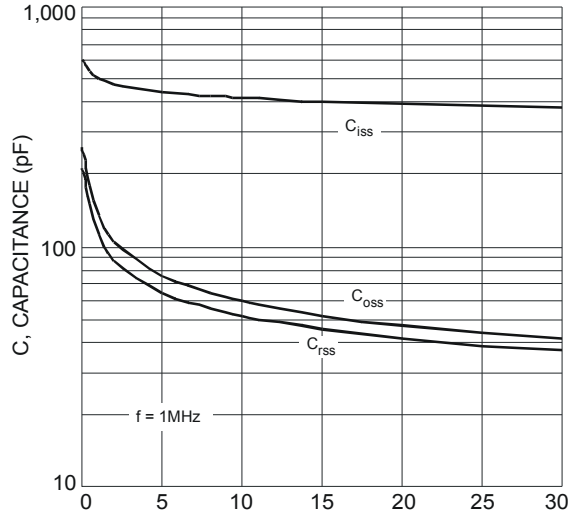


Fig. 9 Typical Capacitance

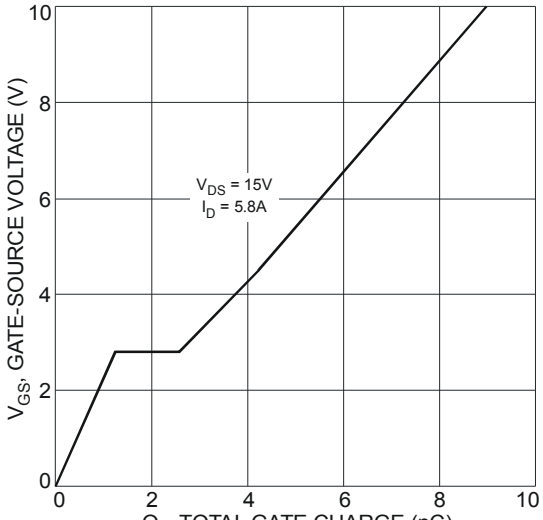


Fig. 10 Gate-Charge Characteristics

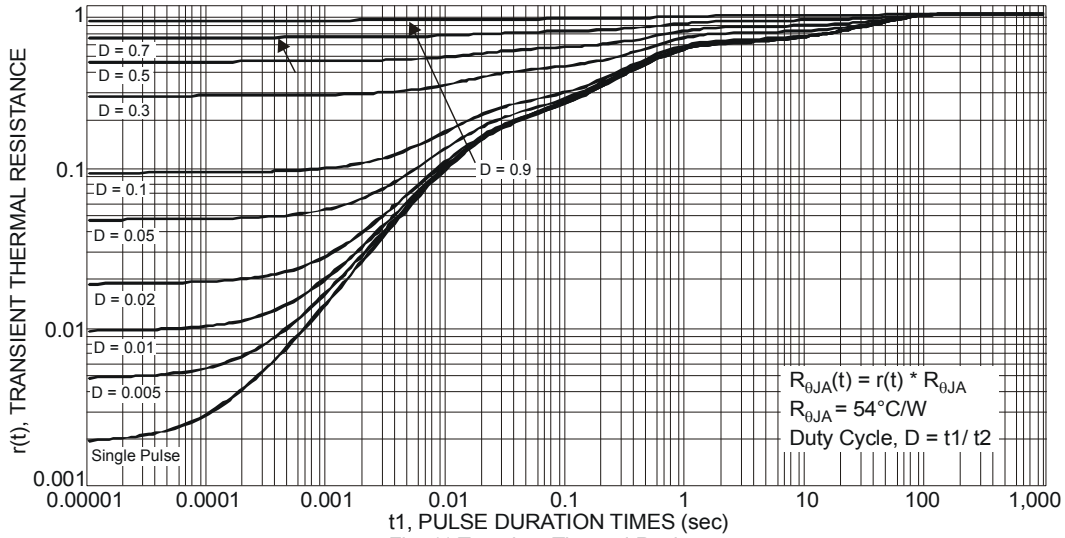
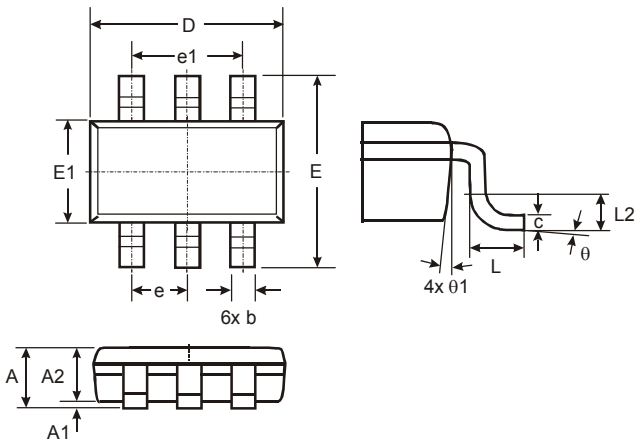


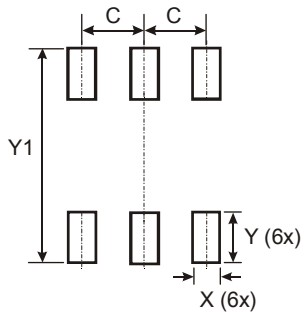
Fig. 11 Transient Thermal Resistance

Package Outline Dimensions



TSOT26			
Dim	**Min**	**Max**	**Typ**
A	—	1.00	—
A1	0.01	0.10	—
A2	0.84	0.90	—
D	—	—	2.90
E	—	—	2.80
E1	—	—	1.60
b	0.30	0.45	—
c	0.12	0.20	—
e	—	—	0.95
e1	—	—	1.90
L	0.30	0.50	—
L2	—	—	0.25
θ	0°	8°	4°
θ1	4°	12°	—
All Dimensions in mm			

Suggested Pad Layout



Dimensions	Value (in mm)
C	0.950
X	0.700
Y	1.000
Y1	3.199