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

$V_{(BR)DSS}$	Max $R_{DS(ON)}$	Max I_D T_A = +25°C (Note 6)
-30V	70mΩ @ V_{GS} = -10V	-4A

Features and Benefits

- Low On-Resistance
- Fast Switching Speed
- Low Threshold
- Low Gate Drive

Description and Applications

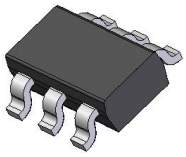
This new generation of TRENCH MOSFETs from Zetex utilizes a unique structure that combines the benefits of low on-resistance with fast switching speed. This makes them ideal for high efficiency, low voltage, power management applications.

- DC - DC Converters
- Power Management Functions
- Disconnect Switches
- Motor Control

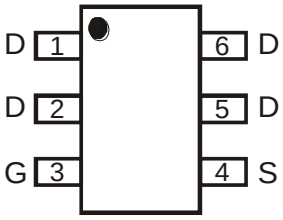
Mechanical Data

- Case: SOT26
- 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 e3
- Weight: 0.016 grams (Approximate)

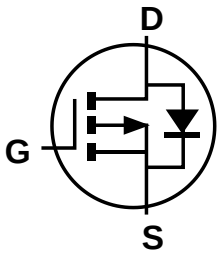
SOT26



Top View



Pin-Out (Top View)



Equivalent Circuit

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

Characteristic			Symbol	Value	Unit
Drain-Source Voltage			V_{DSS}	-30	V
Gate-Source Voltage			V_{GS}	±20	V
Continuous Drain Current	V_{GS} = -10V	T_A= +25°C (Note 6)	I_D	-4.0	A
		T_A= +70°C (Note 6)		-3.2	
		T_A= +25°C (Note 5)		-3.2	
Pulsed Drain Current (Note 7)			I_{DM}	-14.4	A
Continuous Source Current (Body Diode) (Note 6)			I_S	-2.5	A
Pulsed Source Current (Body Diode) (Note 7)			I_{SM}	-14.4	A

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

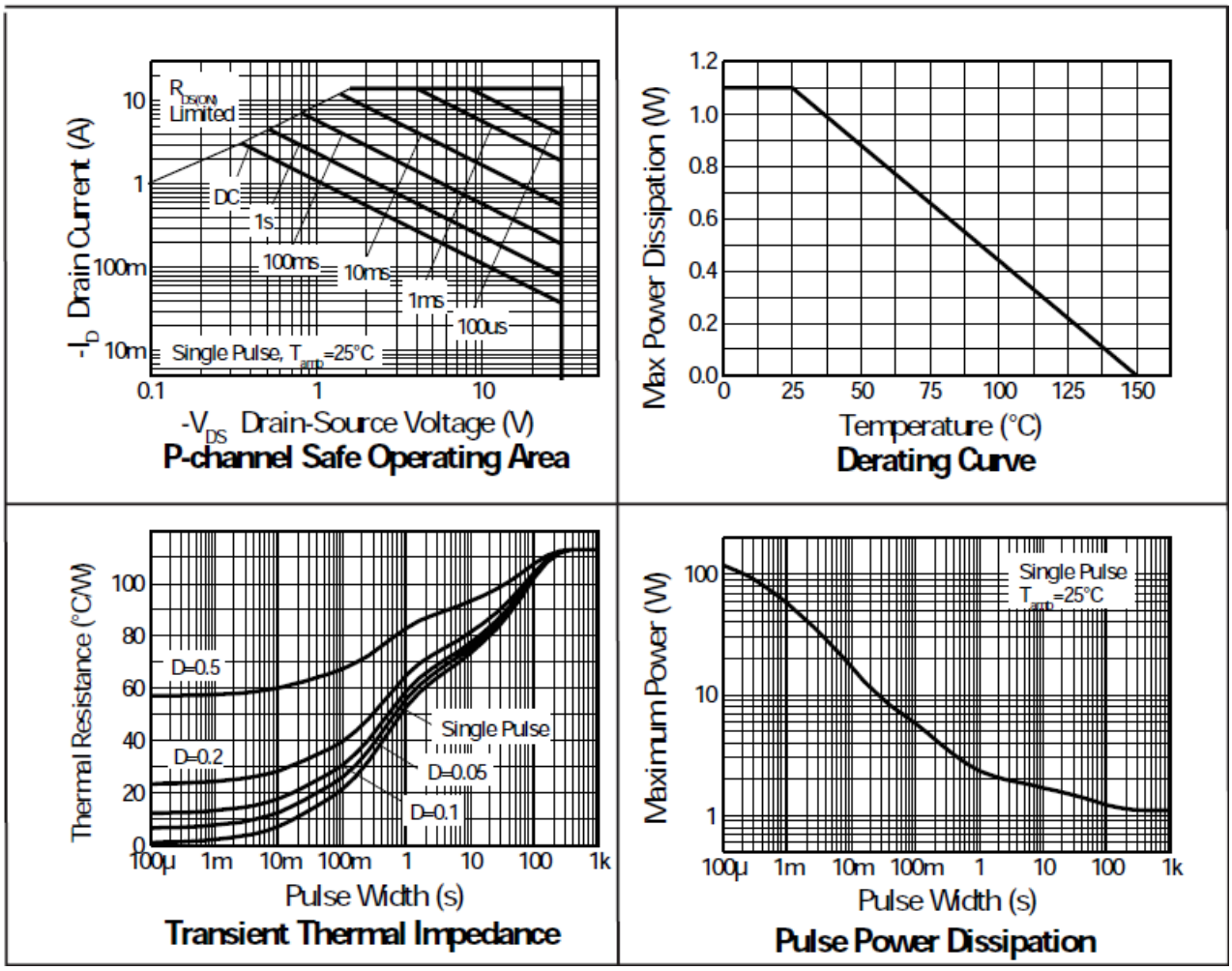
Characteristic	Symbol	Value	Unit
Power Dissipation at T_A= +25°C (Note 5) Linear derating factor	P_D	1.1 8.8	W mW/°C
Power Dissipation at T_A= +25°C (Note 6) Linear Derating Factor	P_D	1.7 13.6	W mW/°C
Junction to Ambient (Note 5)	$R_{\theta JA}$	113	°C/W
Junction to Ambient (Note 6)	$R_{\theta JA}$	73	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

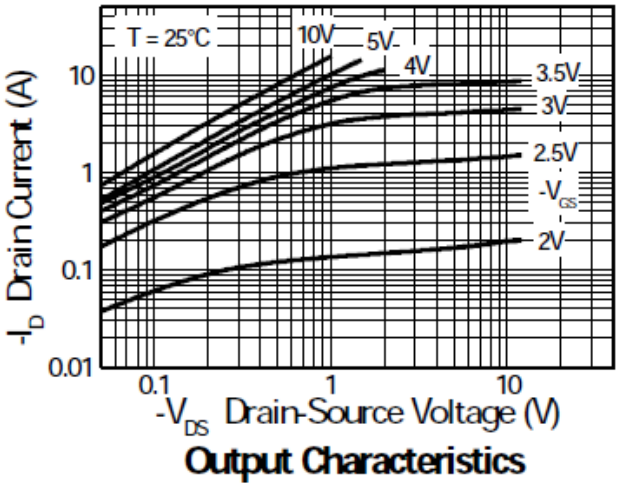
Notes: 5. For a device surface mounted on 25mm x 25mm FR-4 PCB with high coverage of single sided 1oz copper, in still air conditions.
6. For a device surface mounted on FR-4 PCB measured at t≦5 secs.
7. Repetitive rating 25mm x 25mm FR-4 PCB, D = 0.05, pulse width 10μs - pulse width limited by maximum junction temperature. Refer to Transient Thermal Impedance graph.

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

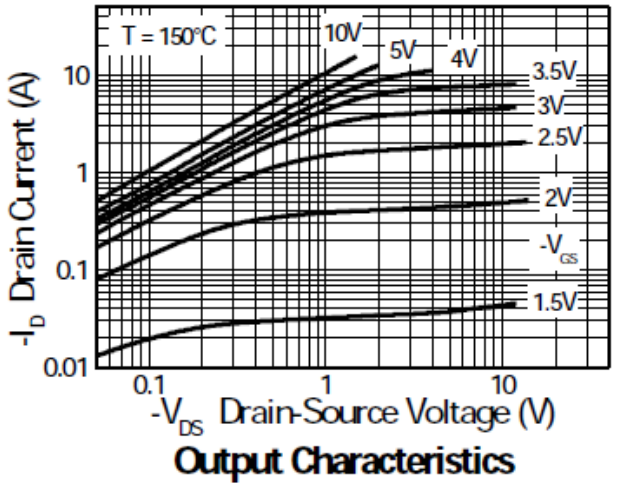
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	-30	-	-	V	I_D = -250μA, V_{GS} = 0V
Zero Gate Voltage Drain Current	I_{DSS}	-	-	-0.5	μA	V_{DS} = -30V, V_{GS} = 0V
Gate-Body Leakage	I_{GSS}	-	-	100	nA	V_{GS} = ±20V, V_{DS} = 0V
Gate-Source Threshold Voltage	$V_{GS(TH)}$	-1.0	-	-	V	I_D = -250μA, V_{DS} = V_{GS}
Static Drain-Source On-State Resistance (Note 8)	$R_{DS(ON)}$	-	-	0.070	Ω	V_{GS} = -10V, I_D =-3.2A
				0.110		V_{GS} = -4.5V, I_D =-2.5A
Forward Transconductance (Notes 8 &10)	g_{fs}	-	6.4	-	S	V_{DS} = -15V, I_D =-3.2A
Diode Forward Voltage (Note 8)	V_{SD}	-	-0.85	-1.2	V	T_J= +25°C , I_S = -2.5A, V_{GS} = 0V
DYNAMIC CHARACTERISTICS						
Input Capacitance (Note 10)	C_{iss}	-	630	-	pF	V_{DS} = -15V, V_{GS} = 0V f = 1MHz
Output Capacitance (Note 10)	C_{oss}	-	113	-	pF	
Reverse Transfer Capacitance (Note 10)	C_{rss}	-	78	-	pF	
Gate Charge (Notes 9 &10)	Q_g	-	8.28	-	nC	V_{GS} = -5V, V_{DS} = -15V I_D = -3.2A
Total Gate Charge (Notes 9 &10)	Q_g	-	15.8	-	nC	V_{GS} = -10V, V_{DS} = -15V I_D = -3.2A
Gate-Source Charge (Notes 9 &10)	Q_{gs}	-	1.84	-	nC	
Gate-Drain Charge (Notes 9 &10)	Q_{gd}	-	2.8	-	nC	
Turn-On Delay Time (Notes 9 &10)	$t_{D(ON)}$	-	1.74	-	ns	V_{DD} = -15V, V_{GS} = -10V I_D = -1A, R_G = 6.0Ω
Turn-On Rise Time (Notes 9 &10)	t_R	-	2.87	-	ns	
Turn-Off Delay Time (Notes 9 &10)	$t_{D(OFF)}$	-	29.2	-	ns	
Turn-Off Fall Time (Notes 9 &10)	t_F	-	8.72	-	ns	
Reverse Recovery Time (Note 10)	t_{RR}	-	19.5	-	ns	T_J= +25°C, I_F=-1.7A, di/dt= 100A/μs
Reverse Recovery Charge (Note 10)	Q_{RR}	-	16.3	-	nC	

Notes: 8. Measured under pulsed conditions. Width=300μs. Duty cycle ≤ 2%
9. Switching characteristics are independent of operating junction temperature.
10. For design aid only, not subject to production testing.

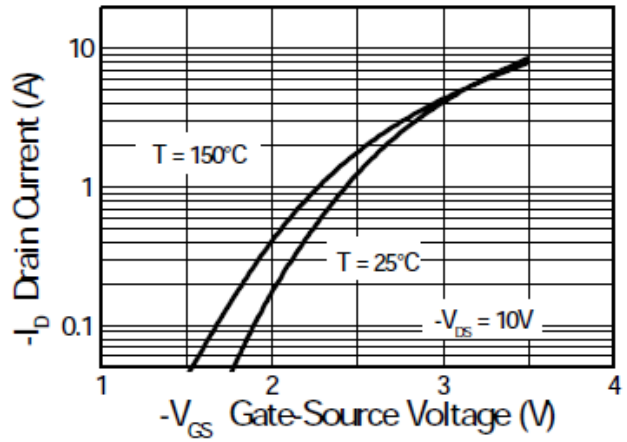

R DSON Limited
DC
1s
100ms
10ms
1ms
100us
Single Pulse, T amb =25°C
-I D Drain Current (A)
-V DS Drain-Source Voltage (V)
P-channel Safe Operating Area
Max Power Dissipation (W)
Temperature (°C)
Derating Curve
Thermal Resistance (°C/W)
D=0.5
D=0.2
Single Pulse
D=0.05
D=0.1
Pulse Width (s)
Transient Thermal Impedance
Maximum Power (W)
Single Pulse
T amb =25°C
Pulse Width (s)
Pulse Power Dissipation



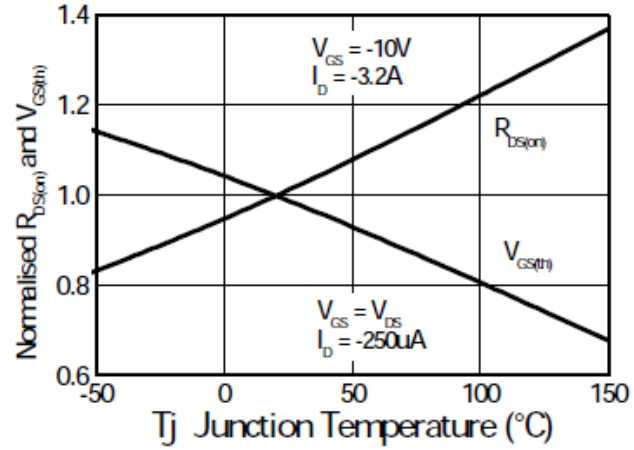
Output Characteristics



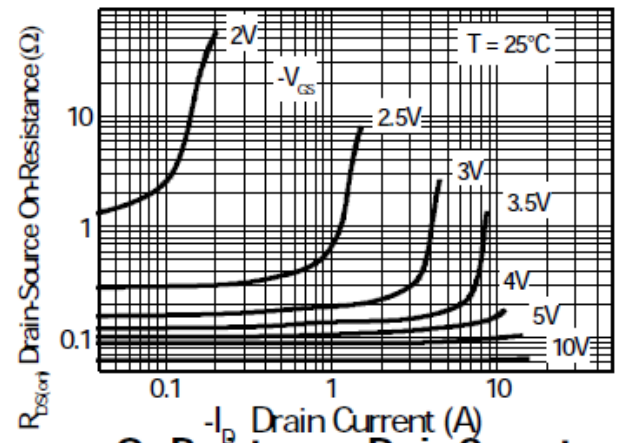
Output Characteristics



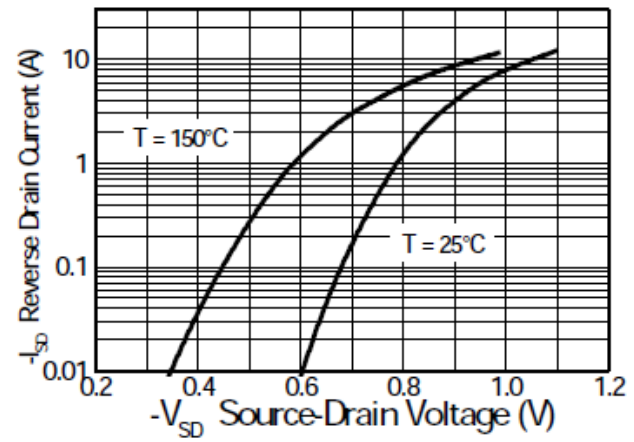
Typical Transfer Characteristics



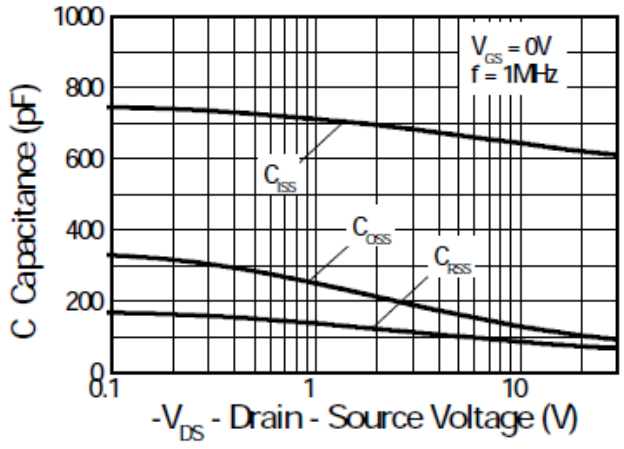
Normalised Curves v Temperature



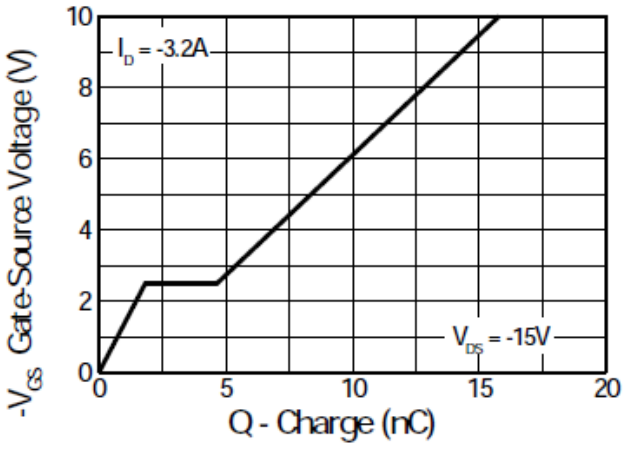
On-Resistance v Drain Current



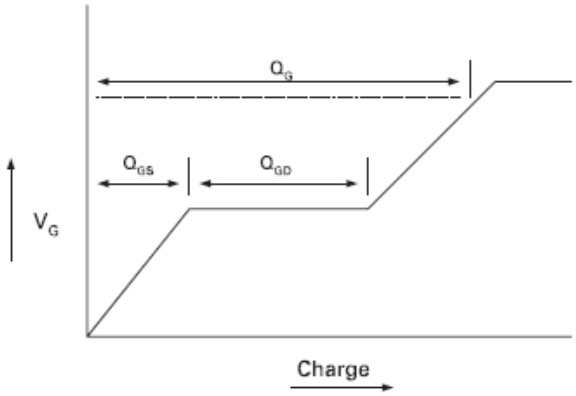
Source-Drain Diode Forward Voltage



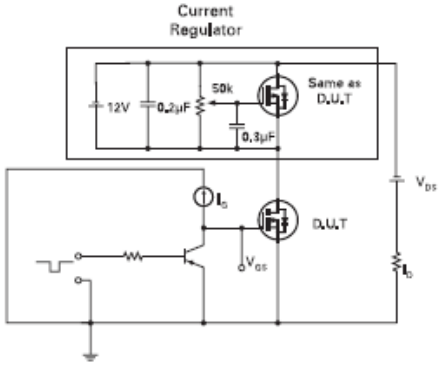
Capacitance v Drain-Source Voltage



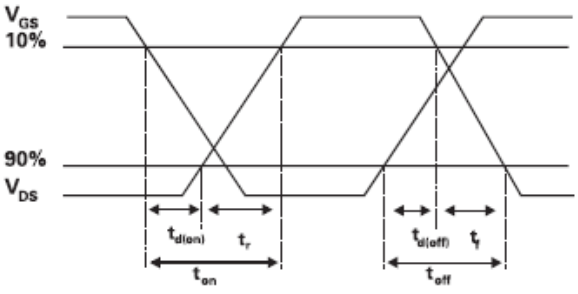
Gate-Source Voltage v Gate Charge



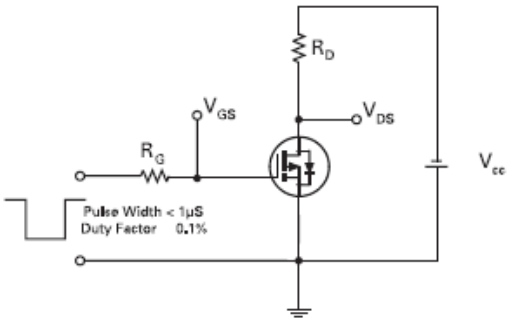
Basic Gate Charge Waveform



Gate Charge Test Circuit

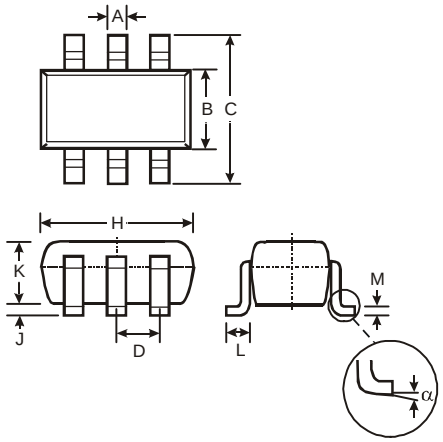


Switching Time Waveforms



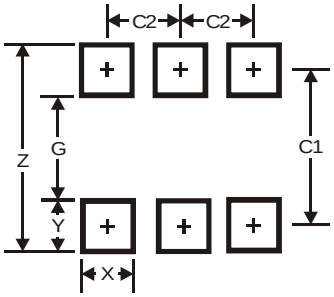
Switching Time Test Circuit

Package Outline Dimensions



SOT26			
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
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
α	0°	8°	—
All Dimensions in mm			

Suggested Pad Layout



Dimensions	Value (in mm)
Z	3.20
G	1.60
X	0.55
Y	0.80
C1	2.40
C2	0.95