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

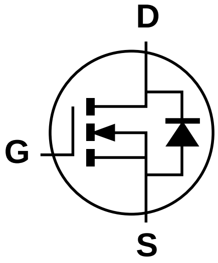
- BV_{DSS} > 60V
- $R_{DS(on)} \leq 2.5\Omega$ @ $V_{GS} = 10V$
- Maximum continuous drain current I_D = 200mA

Mechanical Data

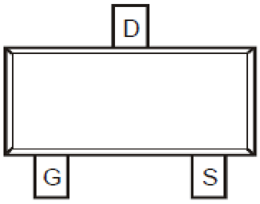
- Case: SOT23
- Case Material: Molded Plastic, “Green” Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish. Solderable per MIL-STD-202, Method 208 ⓔ3
- Weight: 0.008 grams (approximate)

SOT23

Top View



Device symbol



Pin-Out
Top View

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

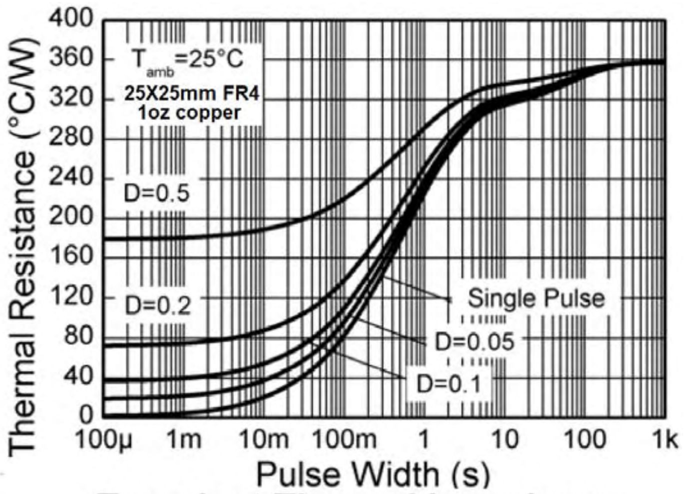
Characteristic	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	60	V
Gate-Source Voltage	V_{GSS}	±20	V
Continuous Drain Current	I_D	200	mA
Pulsed Drain Current (Note 5)	I_{DM}	3	A

Thermal Characteristics

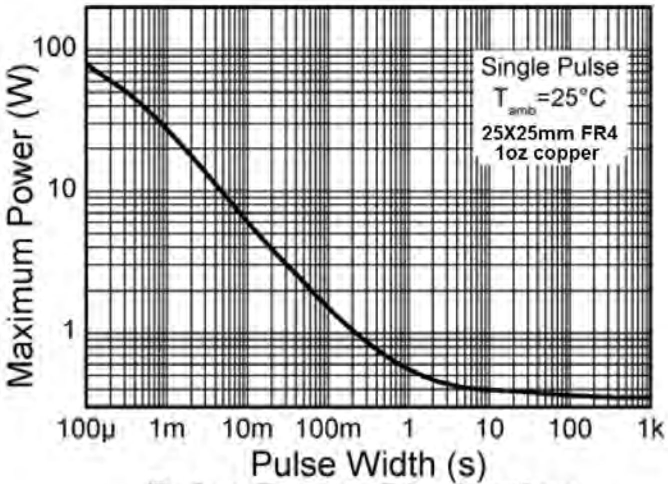
Characteristic		Symbol	Value	Unit
Power Dissipation	(Note 6)	P_D	350	mW
Thermal Resistance, Junction to Ambient	(Note 6)	$R_{\theta JA}$	357	°C/W
Operating and Storage Temperature Range		T_J, T_{STG}	-55 to +150	°C

Notes: 5. Device mounted on minimum recommended pad layout test board, 10 s pulse duty cycle = 1%.
6. For a device mounted on 25mm X 25mm X 1.6mm FR-4 PCV with high coverage of single sided 1oz copper, in still air condition.

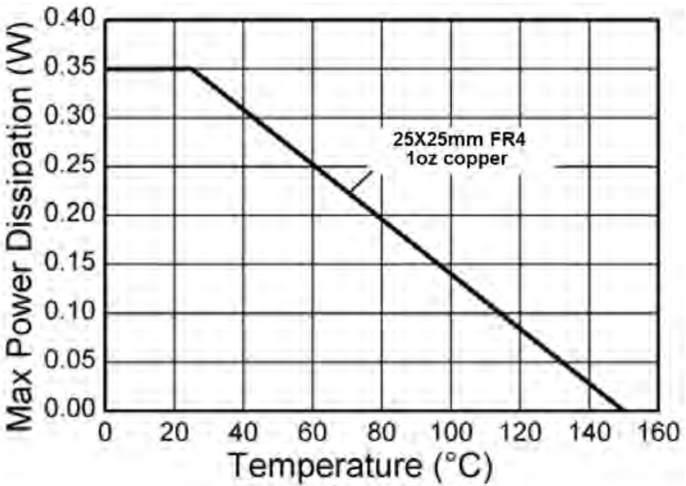
Thermal Characteristics



Transient Thermal Impedance



Pulse Power Dissipation



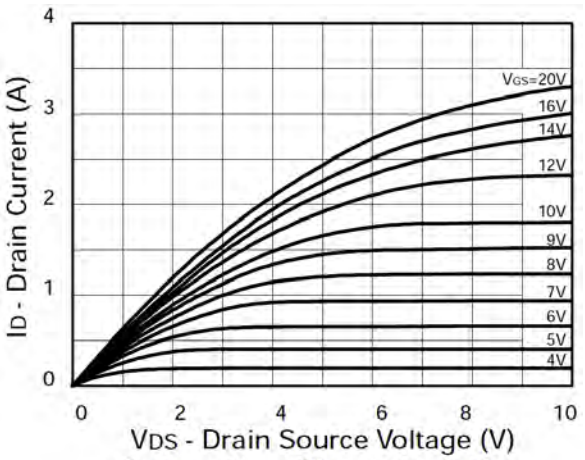
Derating Curve

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

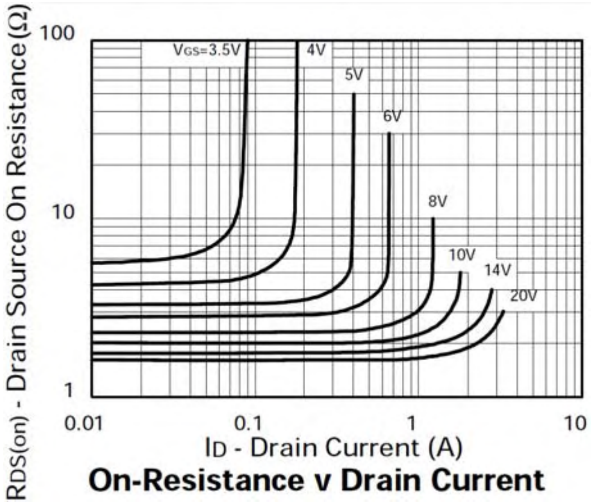
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 7)						
Drain-Source Breakdown Voltage	BV_{DSS}	60	—	—	V	V_{GS} = 0V, I_D = 10mA
Zero Gate Voltage Drain Current T_J = +25°C	I_{DSS}	—	—	10 50	µA	V_{DS} = 60V, V_{GS} = 0V V_{DS} = 48V, V_{GS} = 0V, T_A = +125°C
Gate-Source Leakage	I_{GSS}	—	—	100	nA	V_{GS} = ±20V, V_{DS} = 0V
On-State Drain Current	$I_{D\ on}$	1	—	-	A	V_{GS} = 10V, V_{DS} = 15V
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	$V_{GS\ th}$	1.3	—	3	V	V_{DS} = V_{GS}, I_D = 1mA
Static Drain-Source On-Resistance	$R_{DS\ (on)}$	—	—	2.5 5	Ω	V_{GS} = 10V, I_D = 500mA V_{GS} = 5V, I_D = 200mA
Forward Transconductance	g_{fs}	150	—	-	mS	V_{DS} = 25V, I_D = 250mA
DYNAMIC CHARACTERISTICS (Note 7)						
Input Capacitance	C_{iss}	—	—	35	pF	V_{DS} = 25V, V_{GS} = 0V, f = 1.0MHz
Output Capacitance	C_{oss}	—	—	25	pF	
Reverse Transfer Capacitance	C_{rss}	—	—	8	pF	
Turn-On Delay Time	$t_{D\ on}$	—	—	5	ns	V_{DS} = 25V, I_D = 150mA
Turn-On Rise Time	t	—	—	7	ns	
Turn-Off Delay Time	$t_{D\ off}$	—	—	6	ns	
Turn-Off Fall Time	t_f	—	—	8	ns	

Notes: 7. Short duration pulse test used to minimize self-heating effect.

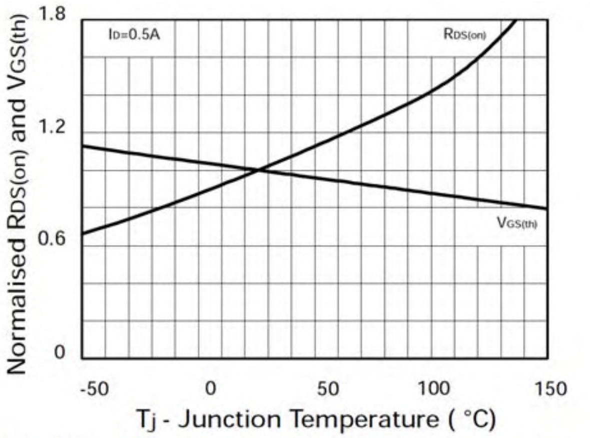
Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)



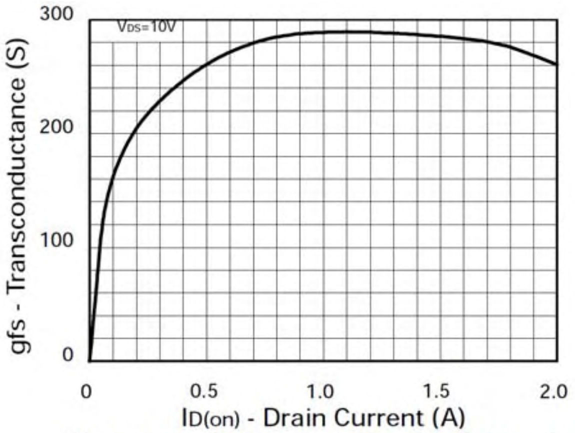
Saturation Characteristics



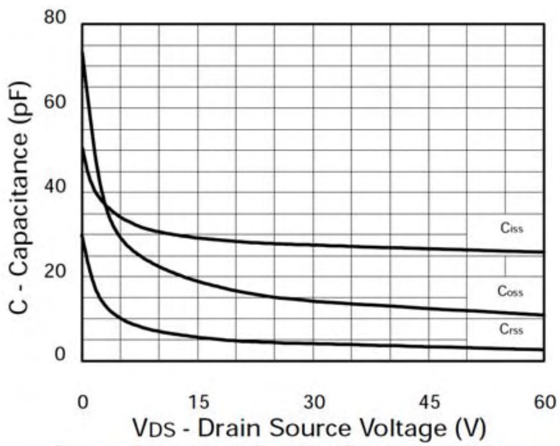
On-Resistance v Drain Current



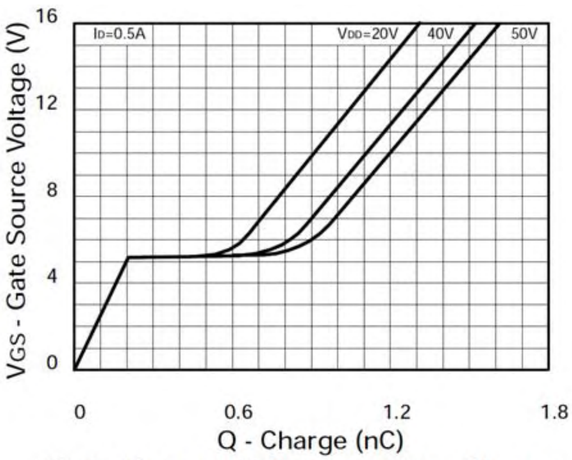
Normalised RDS(on) & VGS(th) v Temperature



Transconductance v Drain Current

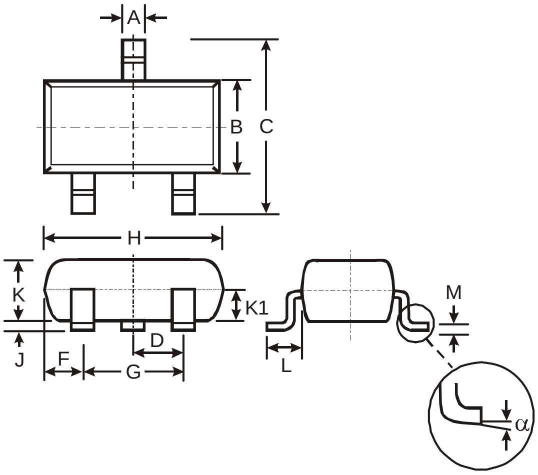


Capacitance v Drain Source Voltage



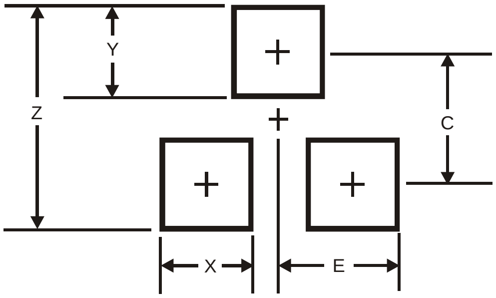
Gate Source Voltage v Gate Charge

Package Outline Dimensions



SOT23			
Dim	**Min**	**Max**	**Typ**
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.903	1.10	1.00
K1	-	-	0.400
L	0.45	0.61	0.55
M	0.085	0.18	0.11
α	0°	8°	-
All Dimensions in mm			

Suggested Pad Layout



Dimensions	Value (in mm)
Z	2.9
X	0.8
Y	0.9
C	2.0
E	1.35