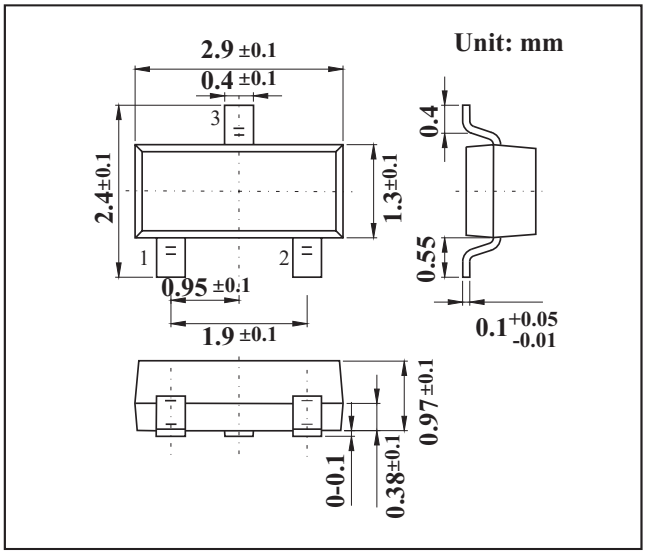
SOT-23 Plastic-Encapsulate MOSFETS

FEATURES

- Metal silicon junction, majority carrier conduction
- For surface mounted applications
- Low power loss, high efficiency
- High forward surge current capability
- For use in low voltage, high frequency inverters
- Free wheeling, and polarity protection applications

MECHANICAL DATA

- Case style:SOT-23molded plastic
- Mounting position:any



MAXIMUM RATINGS AND CHARACTERISTICS

@ 25°C Ambient Temperature (unless otherwise noted)

Parameter	Symbol	5 sec	Steady State	Unit
Drain-Source Voltage	VDS	-12		V
Gate-Source Voltage	VGS	±8		V
Continuous Drain Current (TJ=150 ℃) TA=25℃ TA=70℃	ID	-3.85 -3.0	-3.0 -2.45	A
Pulsed Drain Current	IDM	-12		A
Continuous Source Current (diode conduction) *2	IS	-1.0	-0.62	A
Power Dissipation TA=25℃ TA=70℃	PD	1.19 0.76	0.75 0.48	W
Jumction Temperature	Tj	150		℃
Storage Temperature	Tstg	-55 to +150		℃

* Surface Mounted on FR4 Board.

Thermal Resistance Ratings Ta = 25℃

Parameter	Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient *1	RthJA	85	105	℃/ W
Maximum Junction-to-Ambient *2 Steady State		130	166	
Maximum Junction-to-Foot (Drain) Steady State	RthJF	60	75	

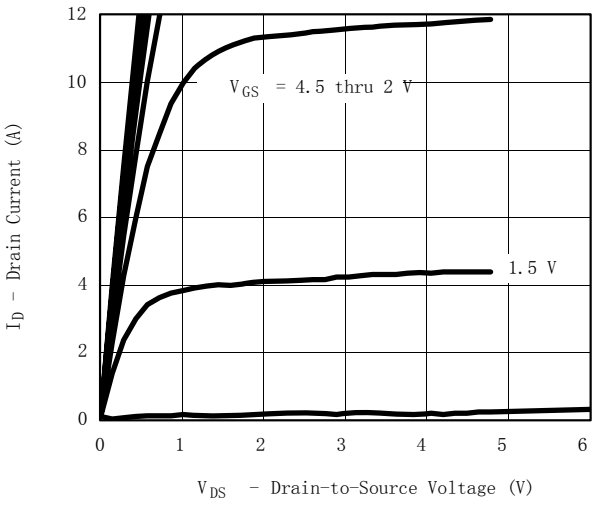
* 1. Surface Mounted on FR4 Board, t≤ 5 sec.
* 2. Surface Mounted on FR4 Board.

MOSFET ELECTRICAL CHARACTERISTICS Ta=25 ℃ unless otherwise specified

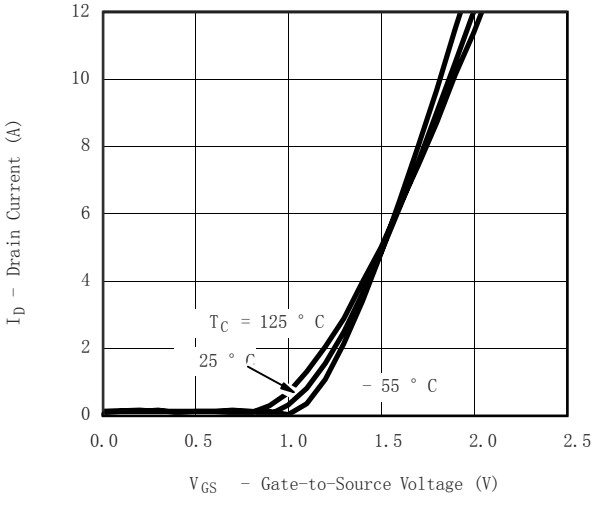
Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V(BR)DSS	VGS = 0 V , I D = - 1 0 μA	-12			V
Gate Threshold Voltage	VGS(th)	VDS = V GS, I D = -250 μA	-0.45		-0.9	
Gate-Body Leakage	IGSS	VDS = 0 V , V GS = ± 8 V			± 100	nA
Zero Gate Voltage Drain Current	IDSS	VDS = - 1 2 V , V GS = 0 V			- 1	μ A
		VDS = - 1 2 V , V GS = 0 V , T J = 5 5 ℃			-10	
On-State Drain Current	ID(on)	VDS ≤ -5 V, VGS = - 4 . 5 V	-6			A
		VDS ≤ -5 V, VGS = - 2 . 5 V	-3			
Drain-Source On-State Resistance	RDS(on)	VGS = - 4 . 5 V , I D = -3.85 A		0.040	0.050	Ω
		VGS = - 2 . 5 V , I D = -3.4 A		0.05	0.065	
		VGS = -1.8V, ID = -2.7 A		0.071	0.100	
Forward Transconductance	gfs	VDS = - 5 V , I D = -3.85 A		7		S
Diode Forward Voltage	VSD	IS = - 1 . 6 A , V GS = 0 V			- 1 . 2	V
Total Gate Charge	Qg	VDS = - 6 V , V GS = - 4 . 5 V , I D= -3.85 A		8	1	5 nC
Gate-Source Charge	Qgs			1.1		
Gate-Drain Charge	Qgd			2.3		
Input Capacitance	Ciss	VDS = - 6 V , V GS = 0 , f = 1 M H z		715		pF
Output Capacitance	Coss			275		
Reverse Transfer Capacitance	Crss			200		
Turn-On Time	td(on)	VDD = - 6 V , R L = 6 Ω , ID = - 1 A , V GEN =- 4.5V , RG = 6 Ω		15	20	ns
	tr			35	50	
Turn-Off Time	td(off)			50	70	
	tf			50	75	

* Pulse test: PW ≤ 300 μs duty cycle ≤ 2%.

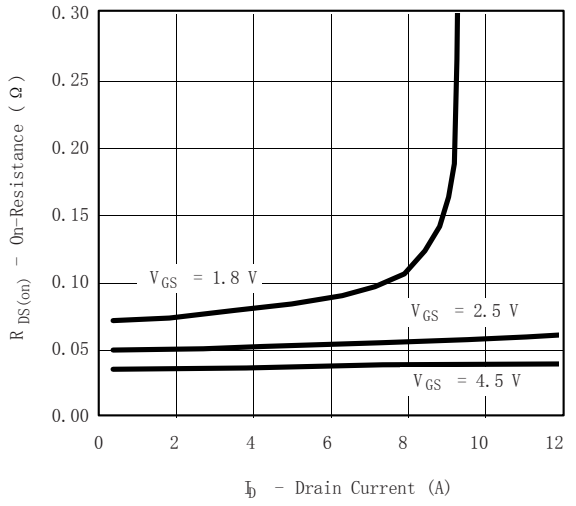
RATINGS AND CHARACTERISTIC CURVES



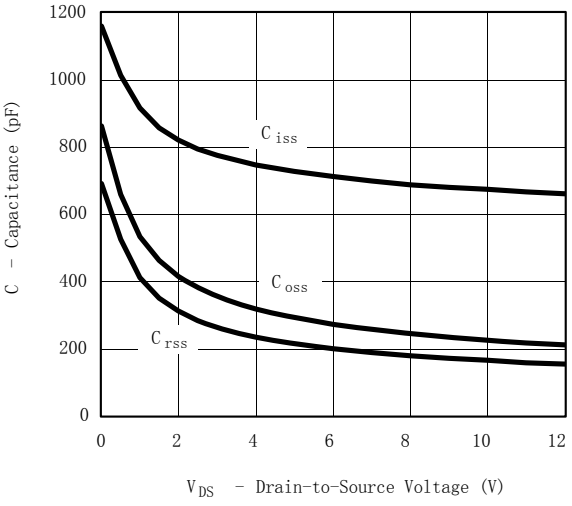
Output Characteristics



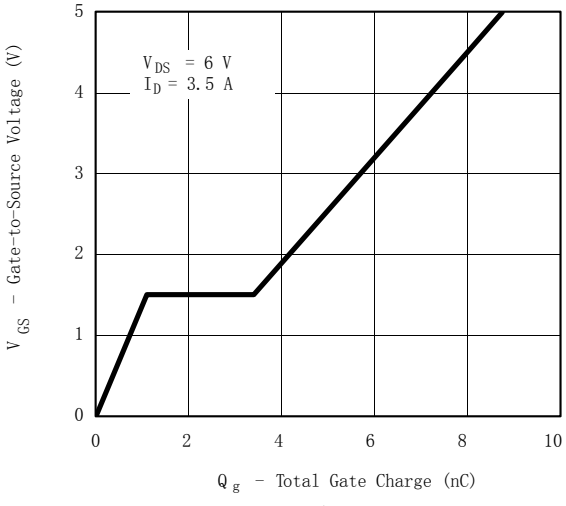
Transfer Characteristics



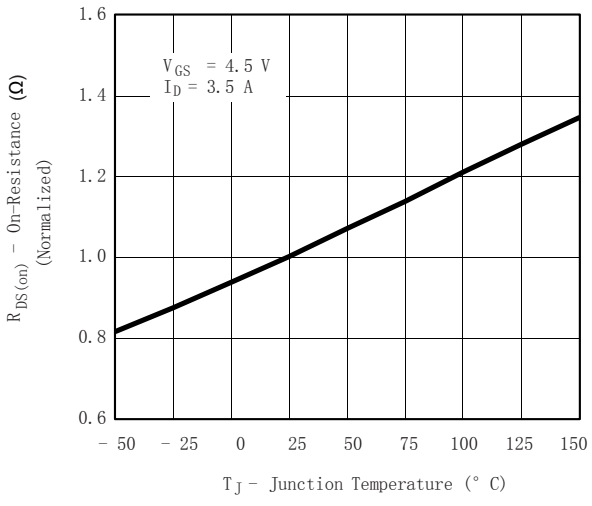
On-Resistance vs. Drain Current



Capacitance

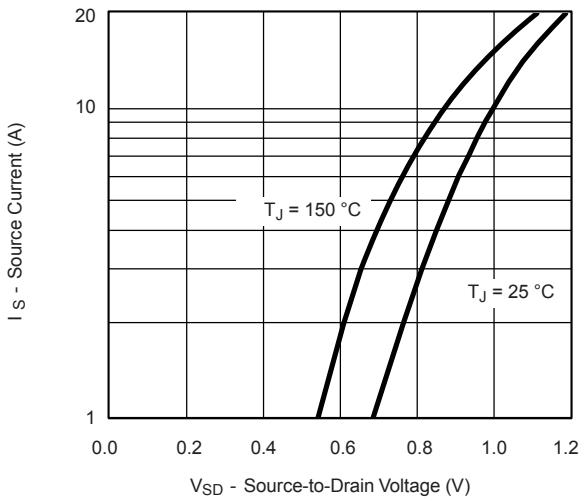


Gate Charge

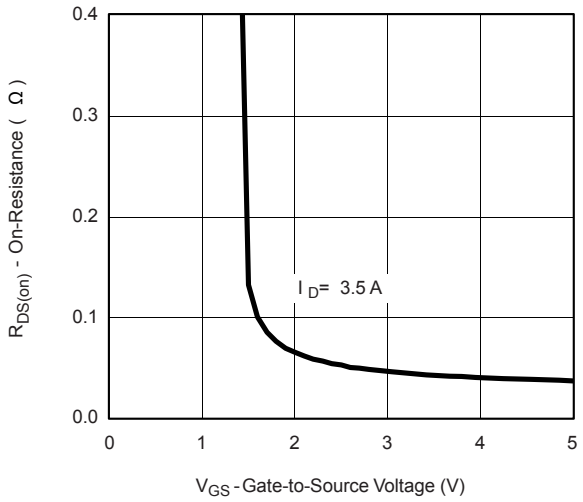


On-Resistance vs. Junction Temperature

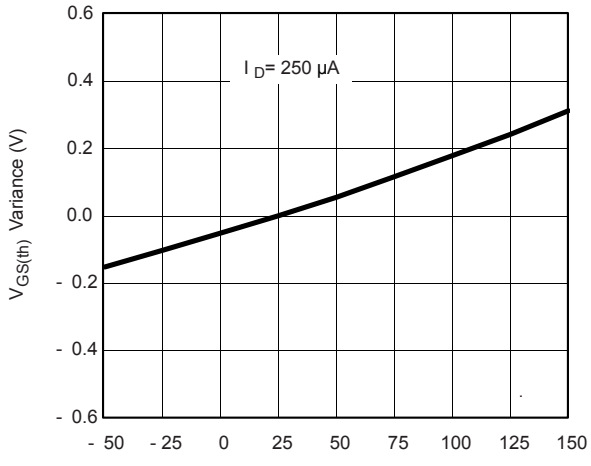
RATINGS AND CHARACTERISTIC CURVES



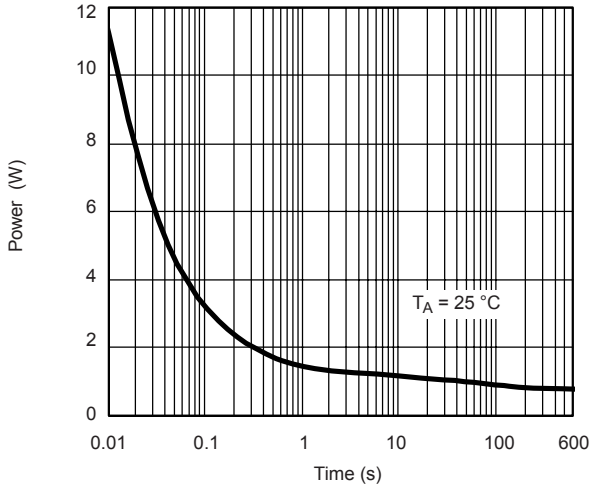
Source-Drain Diode Forward Voltage



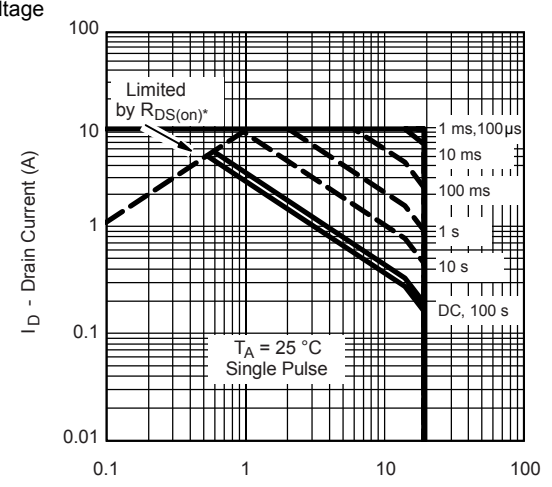
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



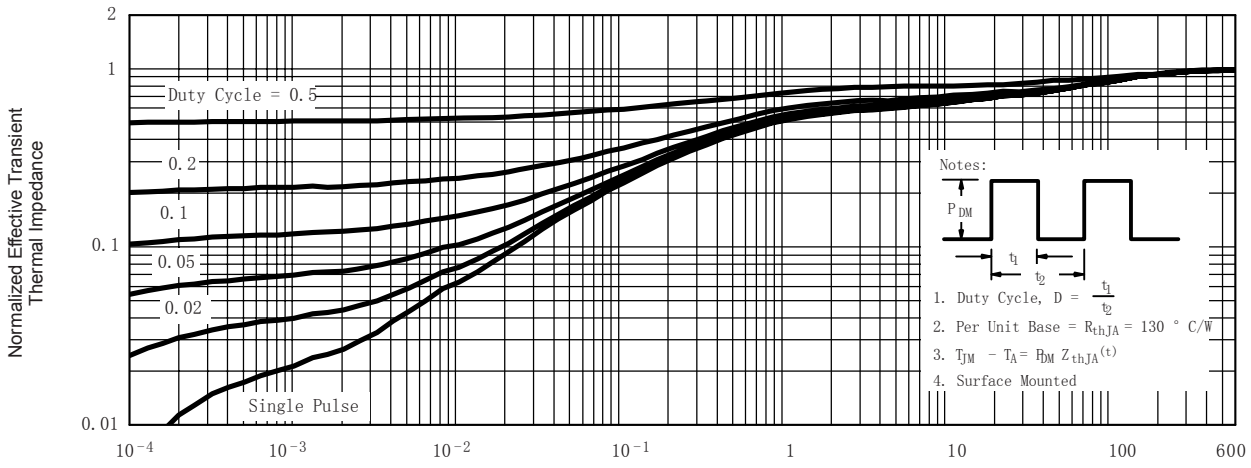
Single Pulse Power



* V_{GS} > minimum V_{GS} at which $R_{DS(on)}$ is specified

Safe Operating Area

RATINGS AND CHARACTERISTIC CURVES



Normalized Thermal Transient Impedance, Junction-to-Ambient