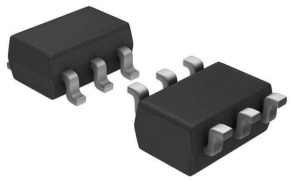
GSM1912

Dual N Channel Small Signal MOSFET

Features

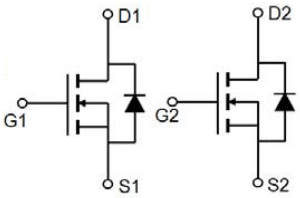
- *Low $R_{DS(on)}$ @V_{GS}=4.5V*
- *3.3V Logic Level Control*
- *Dual N Channel SOT363 Package*
- *Pb−Free, RoHS Compliant*



SOT363

Applications

- Load Switch
- *DC/DC Converter*
- *Switching Circuits*
- *LED Driver*



Absolute Maximum Ratings

Symbol	Parameter		Rating	Unit
Common Ratings (T_A=25°C Unless Otherwise Noted)				
V_{GS}	Gate-Source Voltage		±10	V
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage		20	V
T_J	Maximum Junction Temperature		150	°C
T_{STG}	Storage Temperature Range		-50 to 150	°C
Mounted on Large Heat Sink				
I_{DM}	Pulse Drain Current Tested①	T_A=25°C	8.4	A
I_D	Continuous Drain Current	T_A=25°C	2.1	A
		T_A=70°C	1.6	
P_D	Maximum Power Dissipation	T_A=25°C	0.3	W
		T_A=70°C	0.2	
$R_{\theta JA}$	Thermal Resistance Junction-Ambient		400	°C/W

Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ T_J = 25°C (unless otherwise stated)						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V I_D=250μA	20	--	--	V
I_{DSS}	Zero Gate Voltage Drain Current(T_A=25℃)	V_{DS}=20V, V_{GS}=0V	--	--	1	μA
	Zero Gate Voltage Drain Current(T_A=125℃)	V_{DS}=16V, V_{GS}=0V	--	--	100	uA
I_{GSS}	Gate-Body Leakage Current	V_{GS}=±10V, V_{DS}=0V	--	--	±100	nA
$V_{GS(TH)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250μA	0.4	0.6	1.0	V
$R_{DS(ON)}$	Drain-Source On-State Resistance②	V_{GS}=4.5V, I_D=2A	--	50	70	mΩ
$R_{DS(ON)}$	Drain-Source On-State Resistance②	V_{GS}=3.3V, I_D=1.5A	--	58	80	mΩ
$R_{DS(ON)}$	Drain-Source On-State Resistance②	V_{GS}=2.5V, I_D=1A	--	70	100	mΩ
Dynamic Electrical Characteristics @ T_J = 25°C (unless otherwise stated)						
C_{iss}	Input Capacitance	V_{DS}=10V, V_{GS}=0V, f=1MHz	--	160	--	pF
C_{oss}	Output Capacitance		--	30	--	pF
C_{rss}	Reverse Transfer Capacitance		--	25	--	pF
Q_g	Total Gate Charge	V_{DS}=10V I_D=3A, V_{GS}=5V	--	4.0	--	nC
Q_{gs}	Gate Source Charge		--	0.4	--	nC
Q_{gd}	Gate Drain Charge		--	1.2	--	nC
Switching Characteristics						
$t_{d(on)}$	Turn on Delay Time	V_{DD}=10V, I_D=2A, R_G=3.3Ω, V_{GS}=4.5V	--	8	--	ns
t_r	Turn on Rise Time		--	30	--	ns
$t_{d(off)}$	Turn Off Delay Time		-	19	--	ns
t_f	Turn Off Fall Time		--	28	--	ns
Source Drain Diode Characteristics						
I_{SD}	Source drain current(Body Diode)	T_A=25℃	--	--	1.2	A
V_{SD}	Forward on voltage②	T_j=25℃, I_{SD}=1A, V_{GS}=0V	--	0.82	1.2	V

Notes: ① Pulse width limited by maximum allowable junction temperature

②Pulse test ; Pulse width≤300μs, duty cycle≤2%.

Typical Characteristics

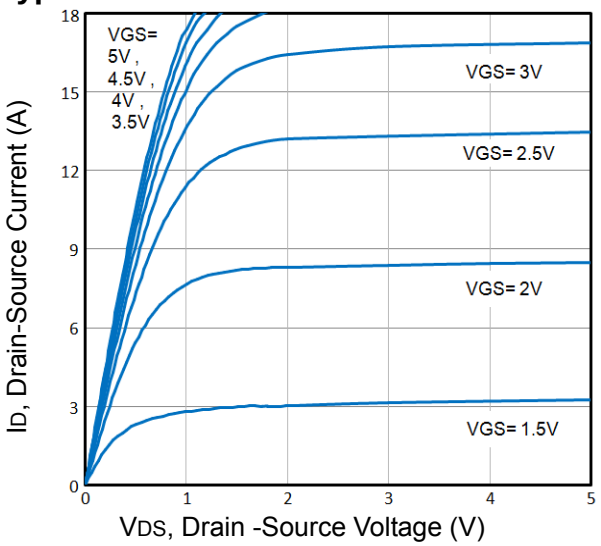


Fig1. Typical Output Characteristics

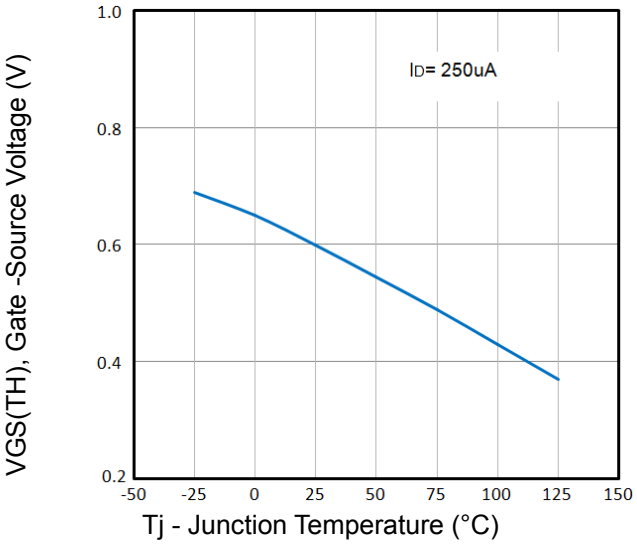


Fig2. Normalized Threshold Voltage Vs. Temperature

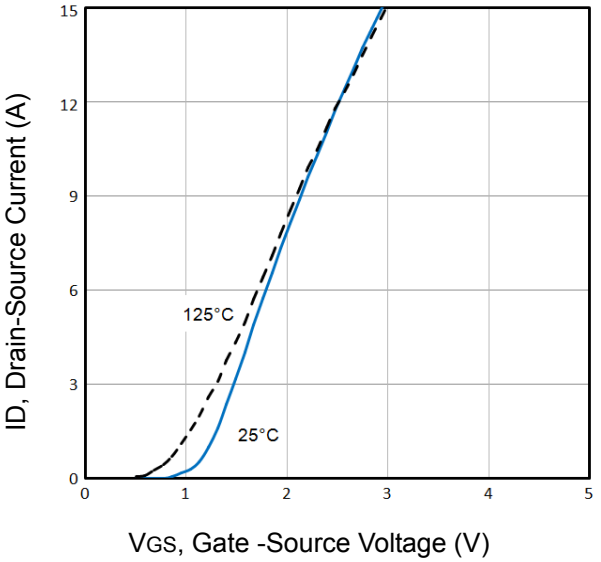


Fig3. Typical Transfer Characteristics

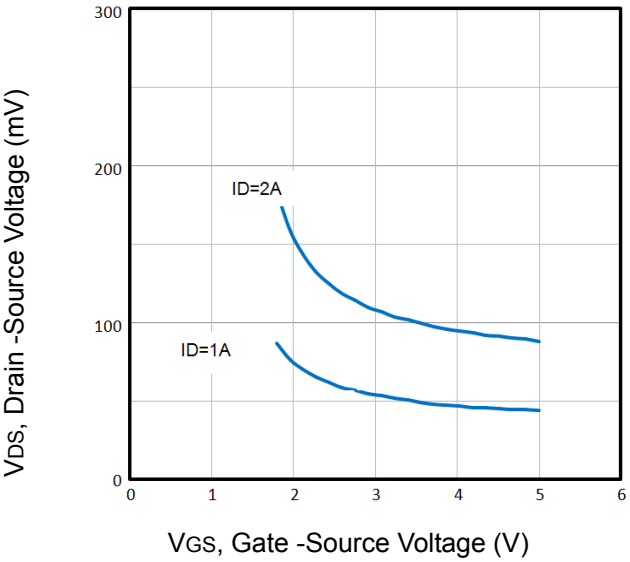


Fig4. Drain -Source Voltage vs Gate -Source Voltage

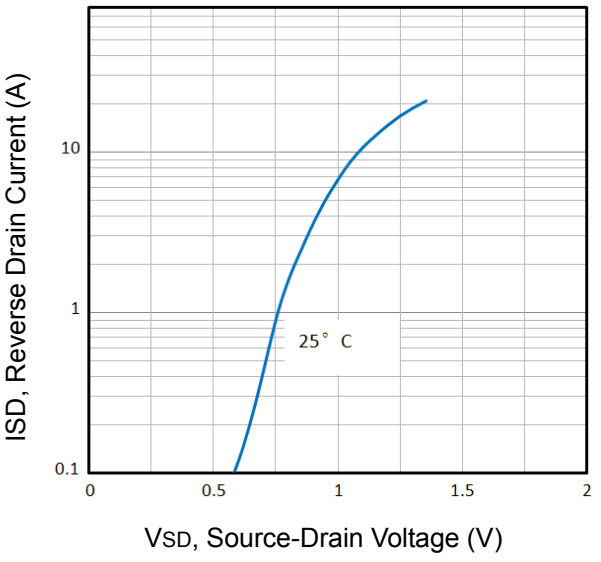


Fig5. Typical Source-Drain Diode Forward Voltage

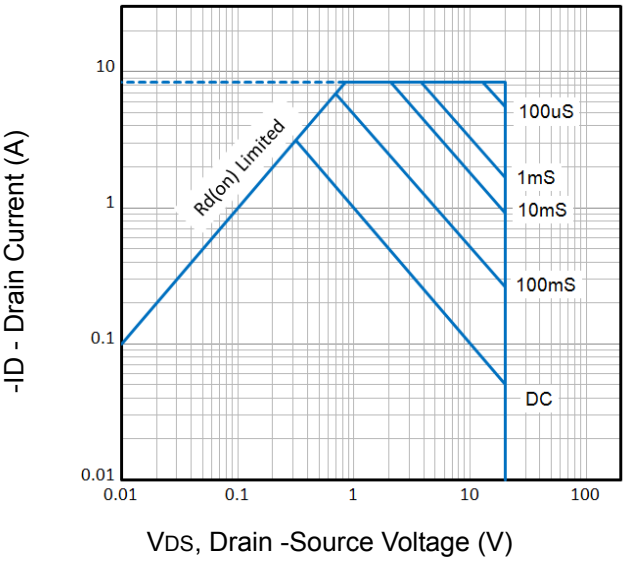
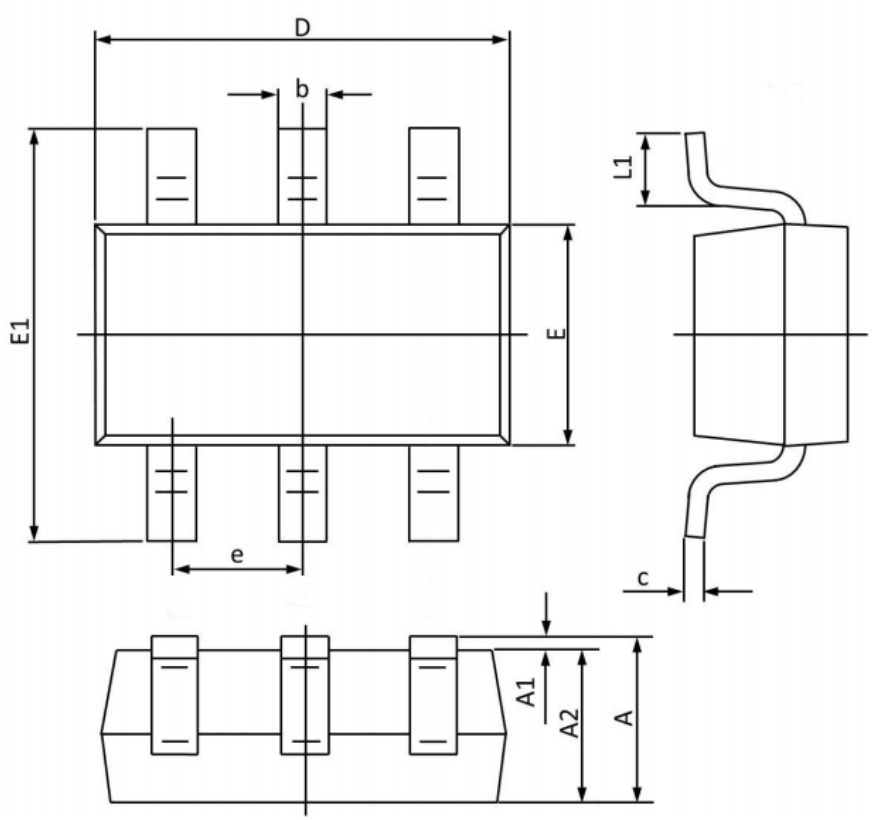


Fig6. Maximum Safe Operating Area

SOT363 Mechanical Data



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MAX	MIN	MAX	MIN
A	1.100	0.800	0.043	0.031
A1	0.100	0.000	0.004	0.000
A2	1.000	0.800	0.039	0.031
b	0.330	0.100	0.013	0.004
c	0.250	0.100	0.010	0.004
D	2.200	1.800	0.087	0.071
E	1.350	1.150	0.053	0.045
E1	2.400	1.800	0.094	0.071
e	0.65BSC		0.026BSC	
L1	0.350	0.100	0.014	0.004