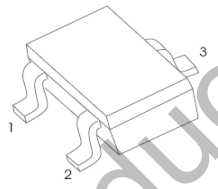
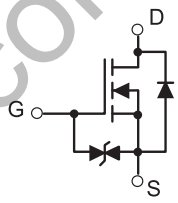
60V N-Channel Enhancement Mode MOSFET – ESD Protected

RoHS COMPLIANT

SOT-523





1.Gate (G)
2.Source (S)
3.Drain (D)

Features

- $R_{DS(ON)}$, V_{GS}@10V, I_D@500mA<3Ω
- $R_{DS(ON)}$, V_{GS}@4.5V, I_D@200mA<4Ω
- Advanced Trench Process Technology
- High Density Cell Design For Ultra Low On-Resistance
- Very Low Leakage Current In Off Condition
- Specially Designed for Battery Operated Systems, Solid-State Relays Drivers: Relay, Displays, Memories, etc
- ESD Protected 2KV HBM

Mechanical Data

- Case : SOT-523 Package
- Marking:27xx(xx=Code)

Maximum Ratings and Thermal Characteristics (T_A=25°C unless otherwise noted)

PARAMETER		SYMBOL	LIMIT	UNITS
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	±20	
Continuous Drain Current		I_D	115	mA
Pulsed Drain Current (Note 1)		I_{DM}	800	
Power Dissipation	T_A=25°C	P_D	200	mW
	Derate above 75°C		150	mW/°C
Operating Junction and Storage Temperature Range		T_J,T_{STG}	-55~150	°C
Typical Thermal Resistance - Junction to Ambient		$R_{\theta JA}$	883	°C/W

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Electrical Characteristics (T_A=25°C unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
Static						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V,I_D=10uA	60	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250uA	1	-	2.5	
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS}=10V,I_D=500mA	-	-	3	Ω
		V_{GS}=4.5V,I_D=200mA	-	-	4	
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V,V_{GS}=0V	-	-	1	uA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±20V,V_{DS}=0V	-	-	±10	
Forward Transconductance	g_{fs}	V_{DS}=15V, I_D=250mA	100	-	-	mS
Dynamic (Note 5)						
Total Gate Charge	Q_g	V_{DS}=15V, I_D=200mA, V_{GS}=4.5V	-	-	0.8	nC
Input Capacitance	Ciss	V_{DS}=25V, V_{GS}=0V, f=1MHZ	-	-	35	pF
Output Capacitance	Coss		-	-	10	
Reverse Transfer Capacitance	Crss		-	-	5	
Turn-On Delay Time	$td_{(on)}$	V_{DD}=30V, R_L=150Ω	-	-	20	ns
Turn-Off Delay Time	$td_{(off)}$	I_D=200mA, V_{GEN}=10V, R_G=10Ω	-	-	125	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	I_S	---	-	-	115	mA
Maximum Pulsed Diode Forward Current	I_{SM}	---	-	-	800	mA
Diode Forward Voltage	V_{SD}	I_S=200mA, V_{GS}=0V	-	0.82	1.3	V

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NOTES :

1. Maximum DC current limited by the package.
2. Surface mounted on FR4 board, t≤10 sec.
3. Pulse width≤300us, Duty cycle≤2%.

TYPICAL CHARACTERISTIC CURVES

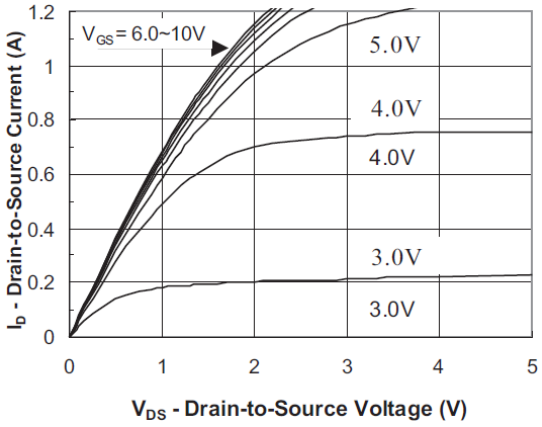


Fig.1 Output Characteristics

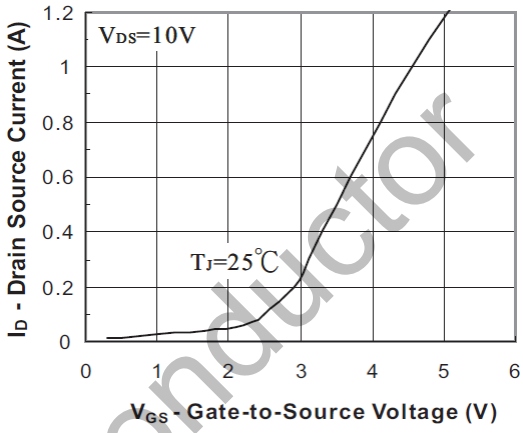


Fig.2 Transfer Characteristics

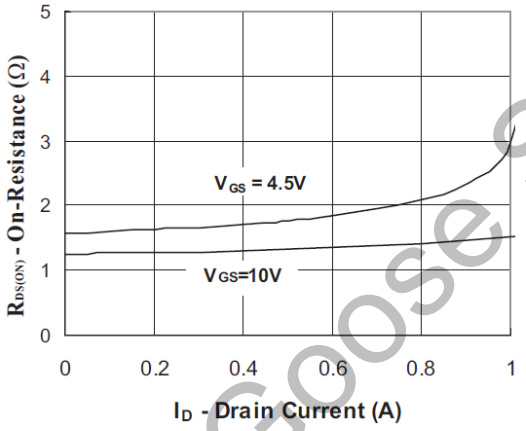


Fig.3 On-Resistance vs. Drain Current

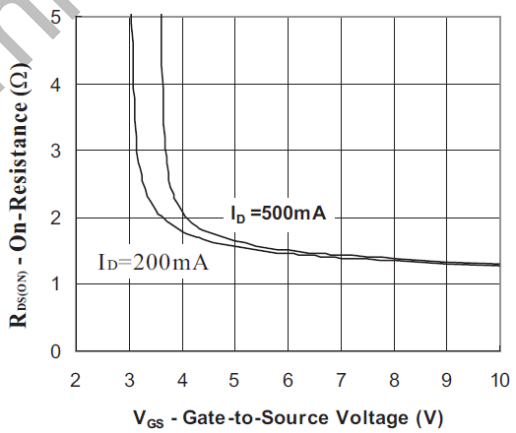


Fig.4 On-Resistance vs. Gate to Source Voltage

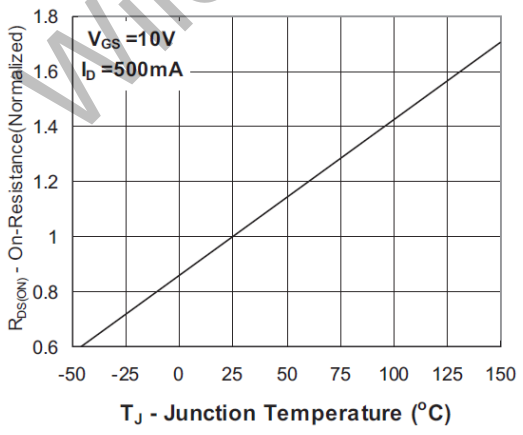


Fig.5 On-Resistance vs Junction Temperature

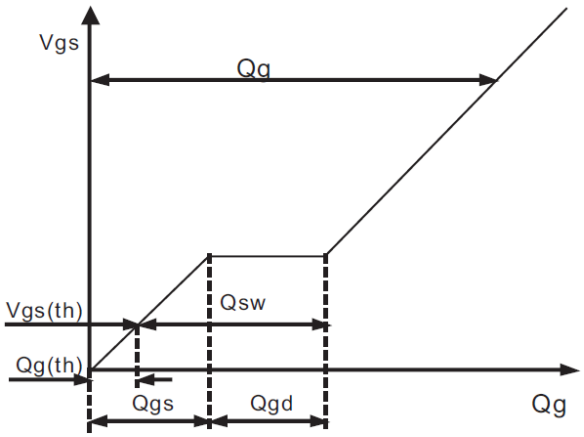


Fig.6 Gate Charge Waveform

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TYPICAL CHARACTERISTIC CURVES

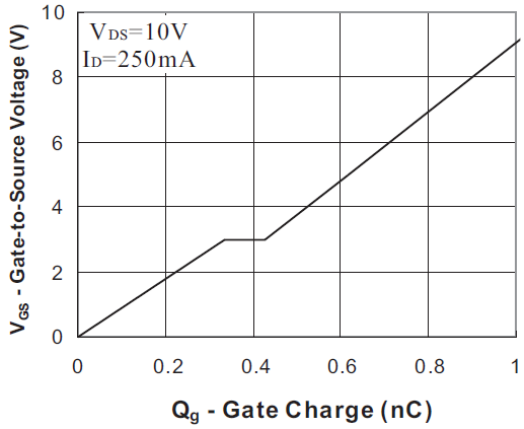


Fig.7 Gate Charge

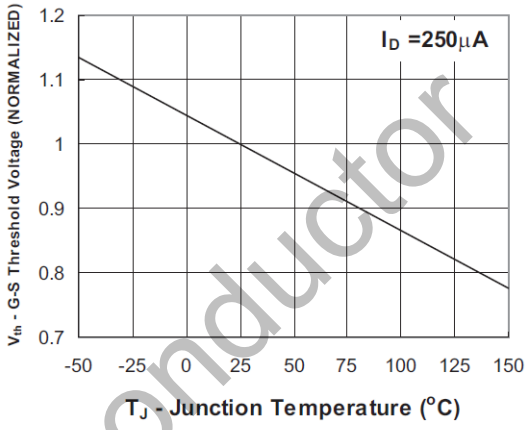


Fig.8 Threshold Voltage Variation vs. Temperature

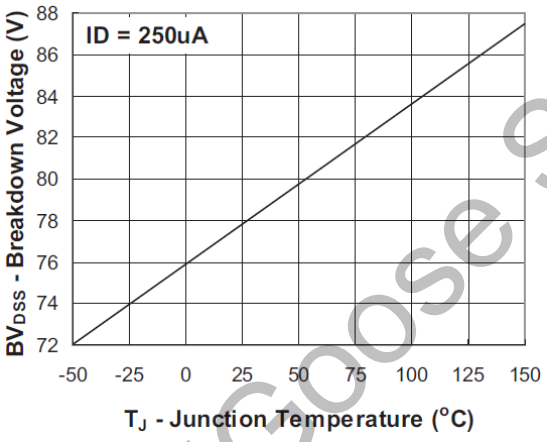


Fig.9 Breakdown Voltage vs Junction Temperature

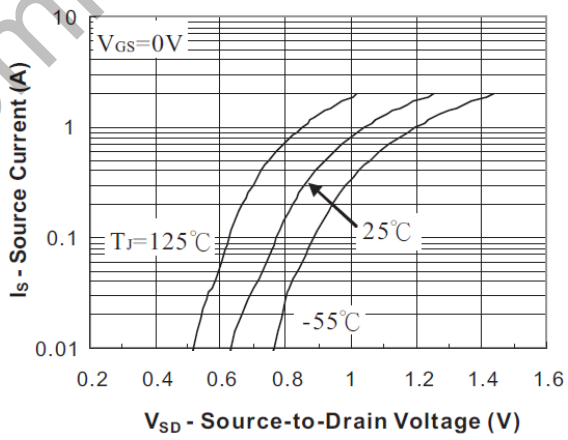


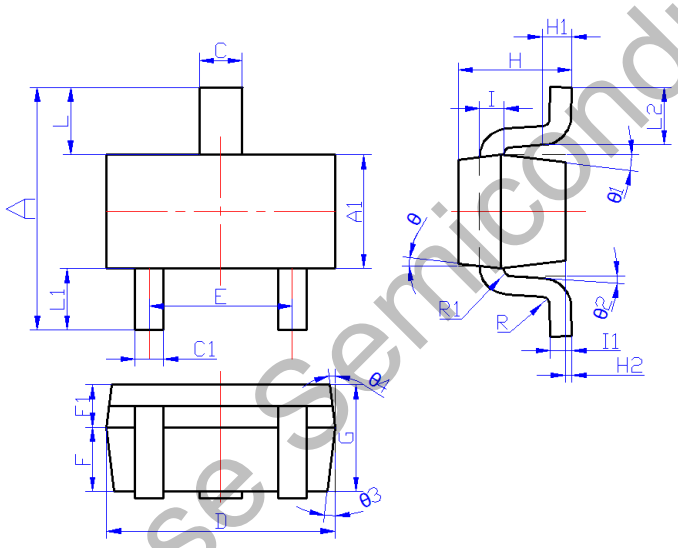
Fig.10 Source-Drain Diode Forward Voltage

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Package Dimension

SOT-523

Unit: mm



符号	标准	下公差	上公差	下限值	上限值
A	1.6	-0.15	0.15	1.45	1.75
A1	0.8	-0.1	0.1	0.7	0.9
C	0.3	-0.1	0.1	0.2	0.4
C1	0.2	-0.1	0.1	0.1	0.3
D	1.6	-0.1	0.1	1.5	1.7
E	1	-0.1	0.1	0.9	1.1
F	0.45	-0.05	0.05	0.4	0.5
F1	0.3	-0.05	0.05	0.25	0.35
G	0.75	-0.1	0.1	0.65	0.85
H	0.81	-0.01	0.01	0.8	0.82
H1	0.25	-0.05	0.05	0.2	0.3
H2	0.06	-0.05	0.04	0.01	0.10
I	0.17	-0.05	0.05	0.12	0.22
I1	0.15	-0.05	0.05	0.1	0.2
L	0.45	-0.05	0.05	0.4	0.5
L1	0.45	-0.05	0.05	0.4	0.5
R	0.08	-0.02	0.02	0.06	0.10
R1	0.07	-0.02	0.02	0.05	0.09
θ/θ1/θ2	4°	-3°	3°	1°	7°

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