Elektronische Bauelemente

SGM1N25E

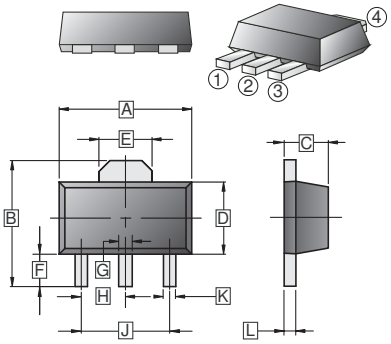
1A, 250V, $R_{DS(ON)}$ 1.78Ω
N-Channel Enhancement Mode MOSFET

RoHS Compliant Product
A suffix of "-C" specifies halogen and lead-free

FEATURES

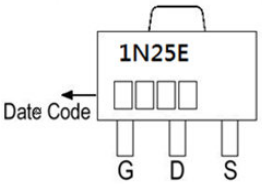
- Low Gate Charge
- Simple Drive Requirement
- Green Device Available
- ESD susceptibility 2KV

SOT-89



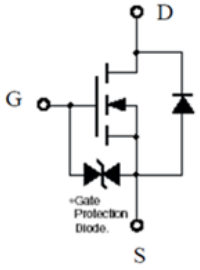
REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	4.30	4.70	G	0.40	0.58
B	3.94	4.40	H	1.50 TYP	
C	1.30	1.70	J	3.00 TYP	
D	2.25	2.70	K	0.32	0.52
E	1.50	1.85	L	0.35	0.46
F	0.89	1.20			

MARKING



PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-89	3K	7 inch



ABSOLUTE MAXIMUM RATINGS (T_A=25℃ unless otherwise specified)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	250	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current@ V_{GS}=10V [1]	T_A=25℃	I_D	1	A
	T_A=70℃		0.8	
Pulsed Drain Current [2]		I_{DM}	4	A
Total Power Dissipation [3]	T_A=25℃	P_D	3.5	W
Operating Junction and Storage Temperature Range		T_J,T_{STG}	-55~150	℃
Thermal Resistance Rating				
Thermal Resistance from Junction to Ambient [1]		$R_{\theta JA}$	35	℃ / W

ELECTRICAL CHARACTERISTICS (T_A=25℃ unless otherwise specified)

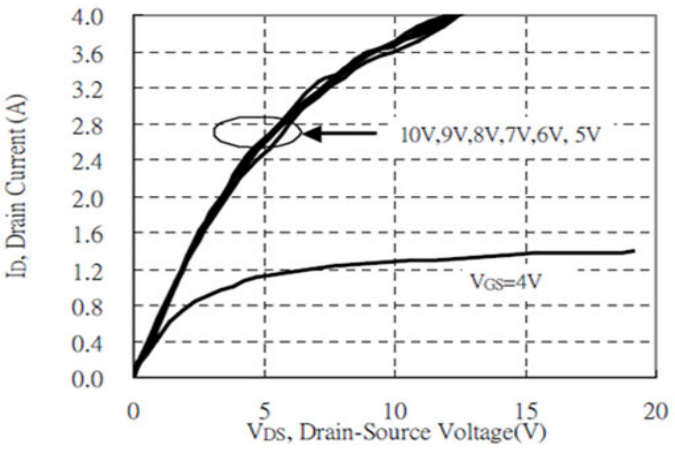
Parameter		Symbol	Min.	Typ.	Max.	Unit	Test Condition
Static							
Drain-Source Breakdown Voltage		BV_{DSS}	250	-	-	V	V_{GS}=0, I_D=250μA
Breakdown Voltage Temperature Coefficient		$\triangle BV_{DSS}/\triangle T_J$	-	0.3	-	V/℃	Reference to 25℃, I_D=1mA
Gate-Threshold Voltage		$V_{GS(th)}$	1.5	-	3.5	V	V_{DS}=V_{GS}, I_D=250μA
Forward Transconductance		g_{fs}	-	1.8	-	S	V_{DS}=15V, I_D=1A
Gate-Source Leakage Current		I_{GSS}	-	-	±10	μA	V_{GS}=±20V
Drain-Source Leakage Current	T_J=25℃	I_{DSS}	-	-	1	μA	V_{DS}=200V, V_{GS}=0
	T_J=85℃		-	-	25		
Static Drain-Source On-Resistance [2]		$R_{DS(ON)}$	-	-	1.78	Ω	V_{GS}=10V, I_D=1A
Total Gate Charge [2]		Q_g	-	4.47	-	nC	V_{DS}=200V V_{GS}=10V I_D=1A
Gate-Source Charge		Q_{gs}	-	1	-		
Gate-Drain (“Miller”)Charge		Q_{gd}	-	1.45	-		
Turn-on Delay Time [2]		$T_{d(on)}$	-	11.8	-	nS	V_{DD}=125V V_{GS}=10V R_G=6Ω I_D=1A
Rise Time		T_r	-	10.7	-		
Turn-off Delay Time		$T_{d(off)}$	-	12.9	-		
Fall Time		T_f	-	6.9	-		
Input Capacitance		C_{iss}	-	214	-	pF	V_{DS}=25V V_{GS}=0V f=1MHz
Output Capacitance		C_{oss}	-	16.2	-		
Reverse Transfer Capacitance		C_{rss}	-	8	-		
Source-Drain Diode							
Diode Forward Voltage [2]		V_{SD}	-	0.8	1.2	V	I_S=1A, V_{GS}=0, T_J=25℃
Reverse Recovery Time		T_{rr}	-	78	-	nS	I_F=1A, dI/dt=100A/μs, T_J=25℃
Reverse Recovery Charge		Q_{rr}	-	325	-	nC	

Notes:

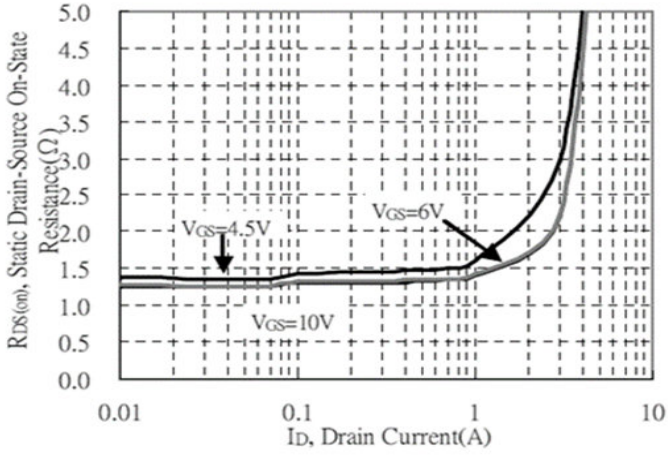
1. The data tested by surface mounted on a 1 inch2 FR-4 board with 2OZ copper ,t≦5sec , 62.5℃/W at steady state.
2. The data tested by pulsed , pulse width≦300μs, duty cycle≦2%.
3. The power dissipation is limited by 150 ℃ junc tion temperature.
4. The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation.

CHARACTERISTIC CURVES

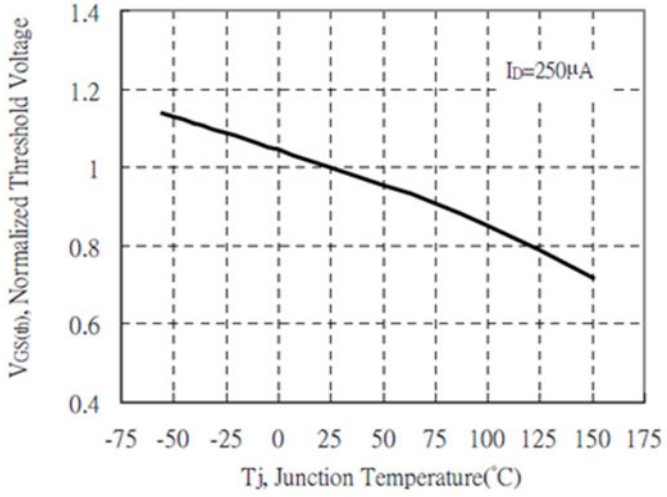
Typical Output Characteristics



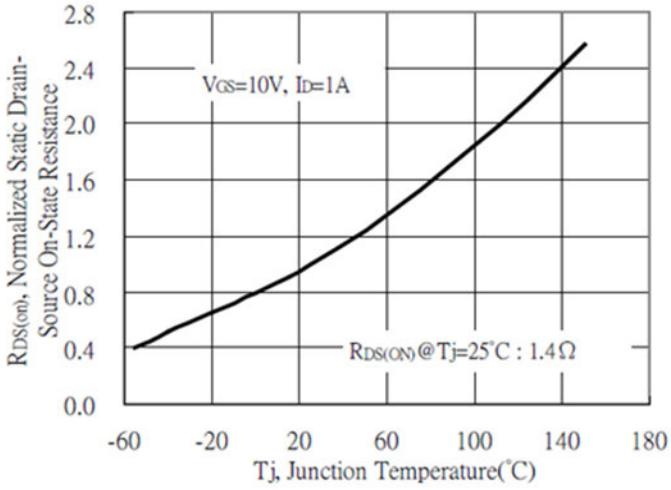
Static Drain-Source On-State resistance vs Drain Current



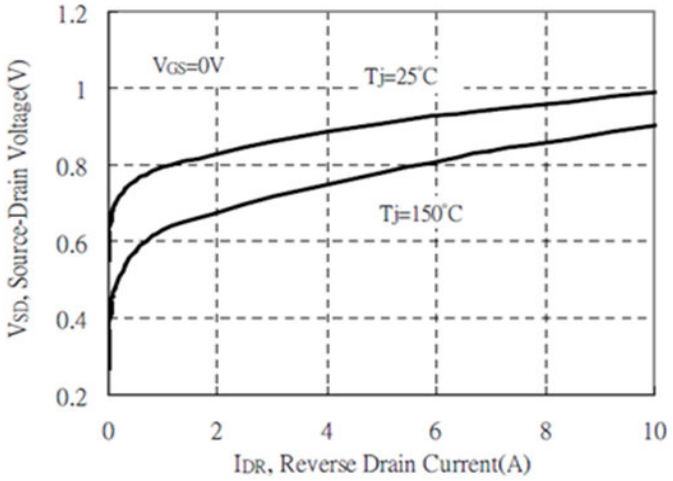
Threshold Voltage vs Junction Tempearture



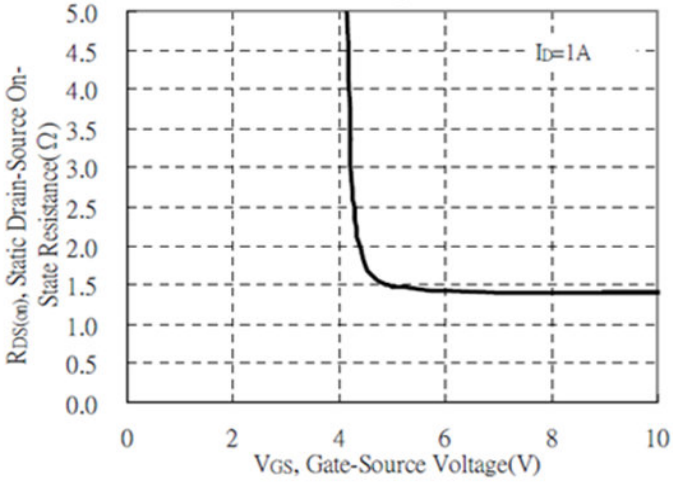
Drain-Source On-State Resistance vs Junction Tempearture



Reverse Drain Current vs Source-Drain Voltage

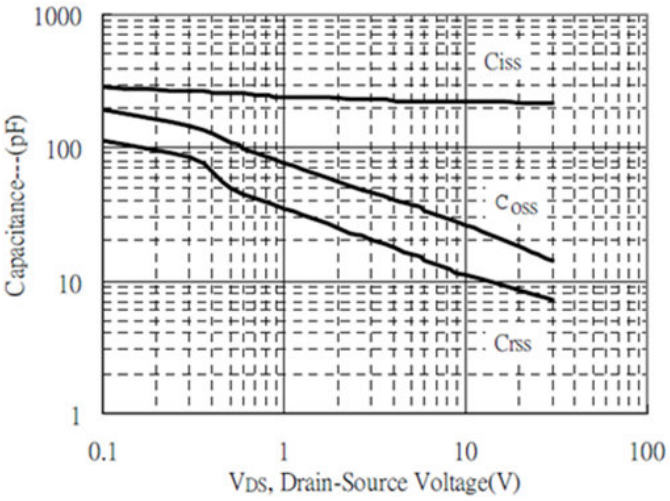


Static Drain-Source On-State Resistance vs Gate-Source Voltage

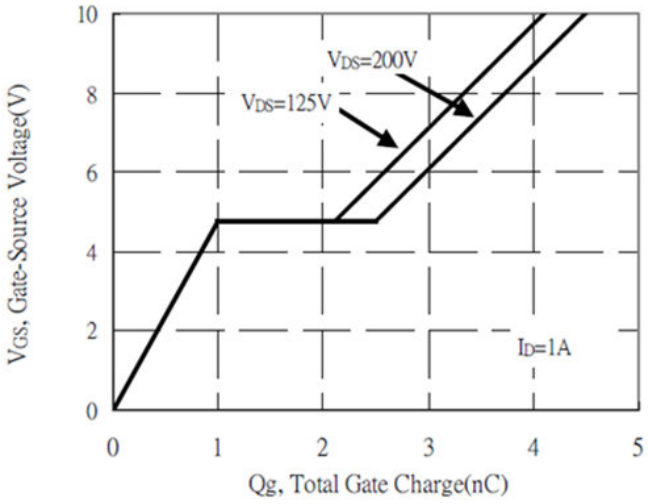


CHARACTERISTIC CURVES

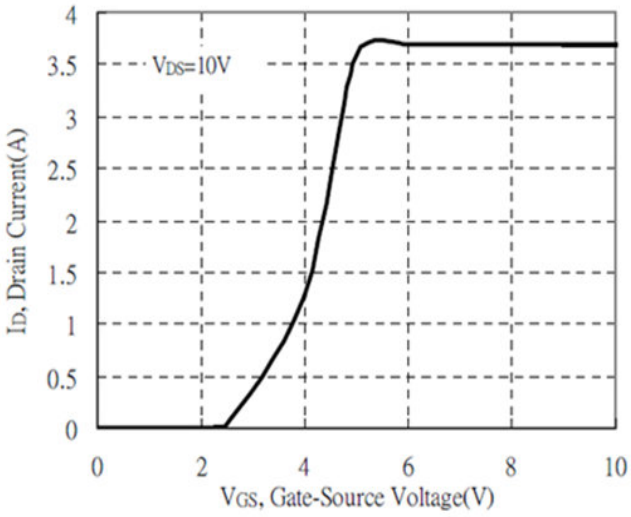
Capacitance vs Drain-to-Source Voltage



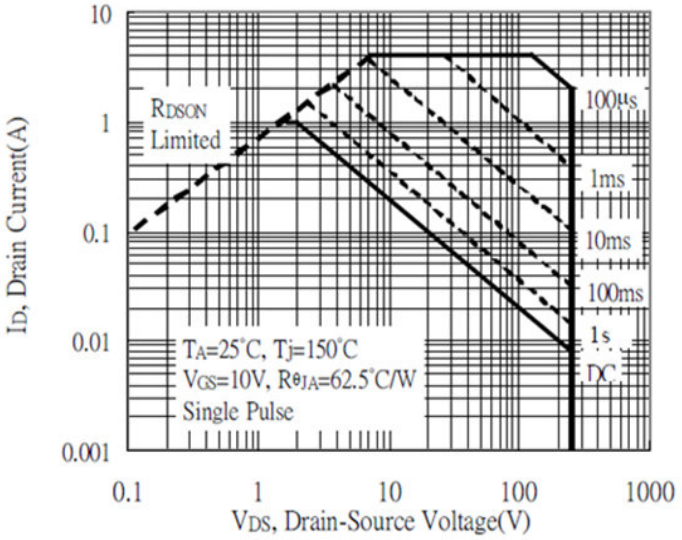
Gate Charge Characteristics



Typical Transfer Characteristics



Maximum Safe Operating Area



Transient Thermal Response Curves