Elektronische Bauelemente

SGM3055

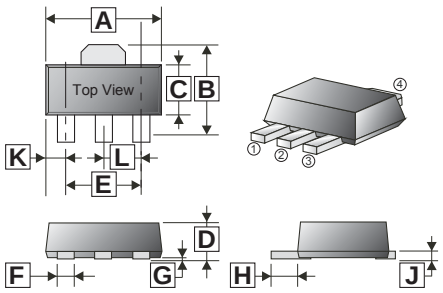
5.8A , 30V , $R_{DS(ON)}$ 28 mΩ
N-Channel Enhancement Mode Power MOSFET

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

DESCRIPTION

The GM3055 provide the designer with the best combination of fast switching, ruggedized device design, low on-resistance and cost-effectiveness. The SOT-89 package is universally preferred for all commercial-industrial surface mount applications and suited for low voltage applications such as DC/DC converters.

SOT-89

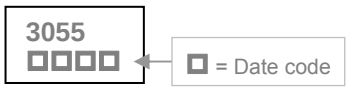


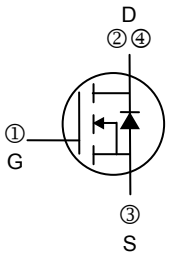
REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	4.40	4.60	G	-	-
B	4.05	4.25	H	0.89	1.20
C	2.40	2.60	J	0.35	0.41
D	1.40	1.60	K	0.70	0.80
E	3.00 REF.		L	1.50 REF.	
F	0.40	0.52			

FEATURES

- Fast Switching
- Dynamic dv/dt Rating
- Repetitive Avalanche Rated
- Simple Drive Requirement

MARKING





PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-89	1K	7 inch

ABSOLUTE MAXIMUM RATINGS (T_A=25°C unless otherwise specified)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current [1]	T_A = 25°C	I_D	5.8	A
	T_A = 70°C		4.7	A
Pulsed Drain Current [2]		I_{DM}	30	A
Power Dissipation [3]		P_D	1.5	W
Linear Derating Factor			0.0118	W / °C
Operating Junction & Storage Temperature		T_J, T_{STG}	-55~150	°C
Thermal Resistance Rating				
Thermal Resistance Junction-Ambient[1](Max).		$R_{\theta JA}$	85	°C / W
Thermal Resistance Junction-Case[1](Max).		$R_{\theta JC}$	30	°C / W

ELECTRICAL CHARACTERISTICS (T_J=25°C unless otherwise specified)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Teat Conditions
Drain-Source Breakdown Voltage		BV_{DSS}	30	-	-	V	V_{GS}=0, I_D=250μA
Breakdown Voltage Temperature Coefficient		$\triangle BV_{DSS}/\triangle T_J$	-	0.021	-	V / °C	Reference to 25°C, I_D=1mA
Gate Threshold Voltage		$V_{GS(th)}$	1.2	-	2.5	V	V_{DS}=V_{GS}, I_D=250μA
Gate-Source Leakage Current		I_{GSS}	-	-	±100	nA	V_{GS}= ±20V
Drain-Source Leakage Current	T_J=25°C	I_{DSS}	-	-	1	μA	V_{DS}=24V, V_{GS}=0
	T_J=55°C		-	-	5		V_{DS}=24V, V_{GS}=0
Static Drain-Source On-Resistance [2]		$R_{DS(ON)}$	-	-	28	mΩ	V_{GS}=10V, I_D=5A
			-	-	40		V_{GS}=4.5V, I_D=4A
Total Gate Charge [2]		Q_g	-	6	8.4	nC	I_D=5A V_{DS}=15V V_{GS}=4.5V
Gate-Source Charge		Q_{gs}	-	2.5	3.5		
Gate-Drain (“Miller”) Charge		Q_{gd}	-	2.1	2.9		
Turn-on Delay Time [2]		$T_{d(on)}$	-	2.4	4.8	nS	V_{DD}=15V I_D=5A V_{GS}=10V R_G=3.3Ω R_D=1.9Ω
Rise Time		T_r	-	7.8	14		
Turn-off Delay Time		$T_{d(off)}$	-	22	44		
Fall Time		T_f	-	4	8		
Input Capacitance		C_{iss}	-	572	800	pF	V_{GS}=0 V_{DS}=15V f=1.0 MHz
Output Capacitance		C_{oss}	-	81	112		
Reverse Transfer Capacitance		C_{rss}	-	65	91		
Source-Drain Diode							
Forward On Voltage[2]		V_{SD}	-	-	1.2	V	I_S=3A, V_{GS}=0, T_J=25°C
Continuous Source Current(Body Diode) [1.4]		I_S	-	-	5.8	A	V_D=V_G=0, V_S=1.2V
Pulsed Source Current(Body Diode) [2.4]		I_{SM}	-	-	30	A	

Notes:
1. The data tested by surface mounted on a 1 inch2 FR-4 board with 2OZ copper.
2. The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%
3. The power dissipation is limited by 150°C junction 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

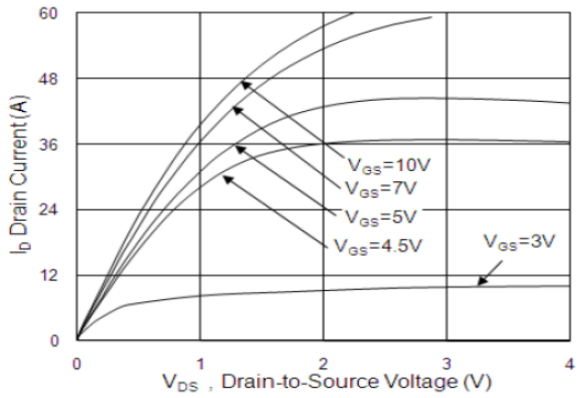


Fig.1 Typical Output Characteristics

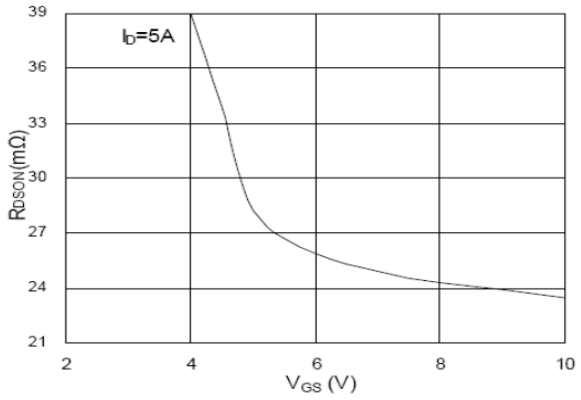


Fig.2 On-Resistance vs. G-S Voltage

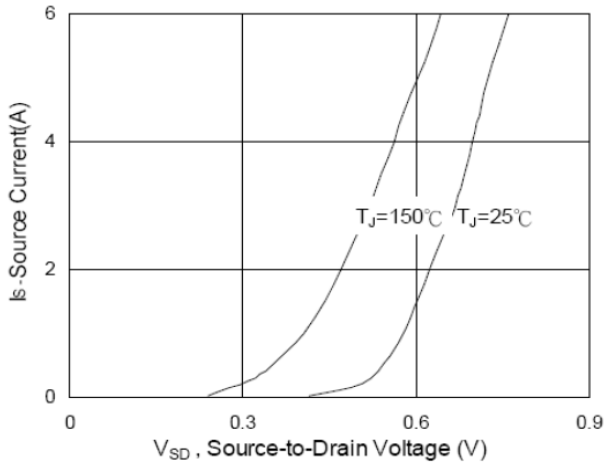


Fig.3 Forward Characteristics Of Reverse

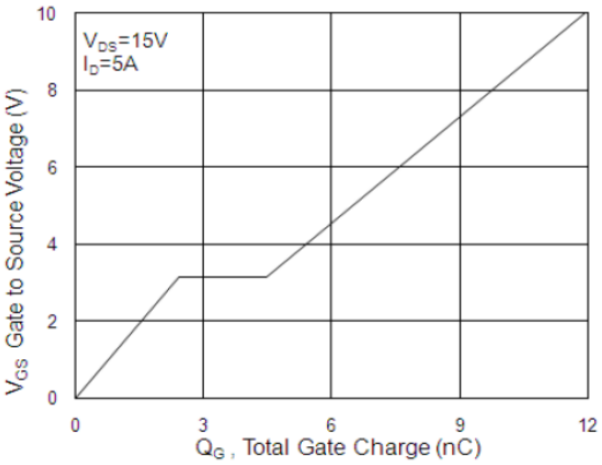


Fig.4 Gate-Charge Characteristics

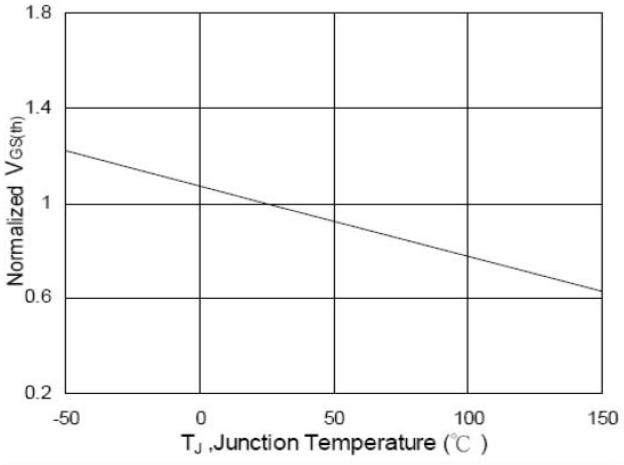


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

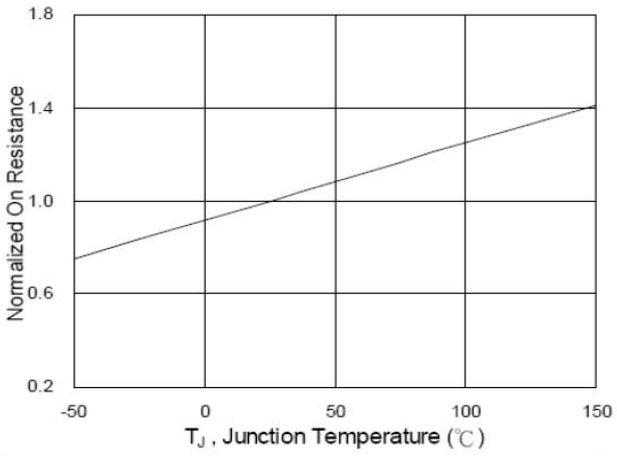


Fig.6 Normalized R_{DSON} vs. T_J

CHARACTERISTIC CURVES

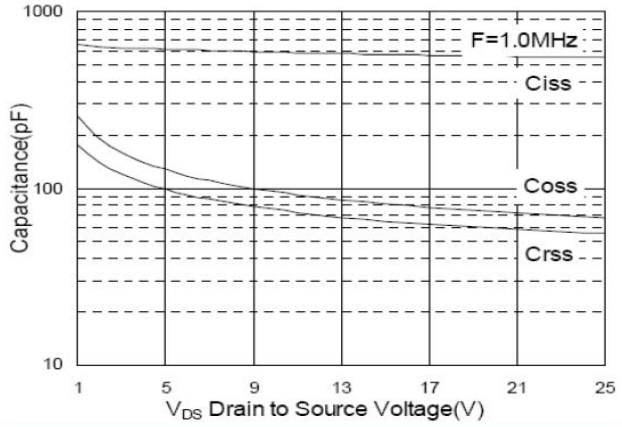


Fig.7 Capacitance

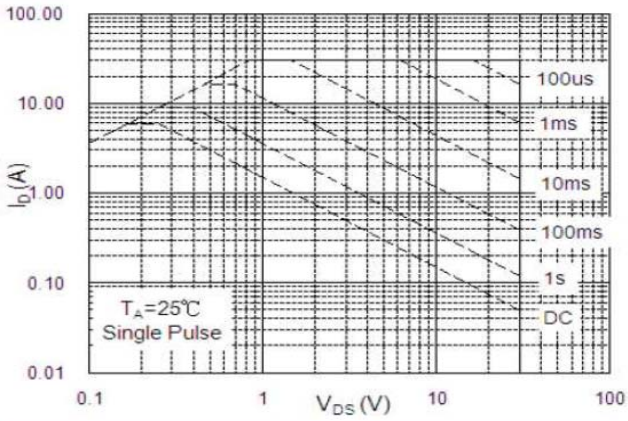


Fig.8 Safe Operating Area

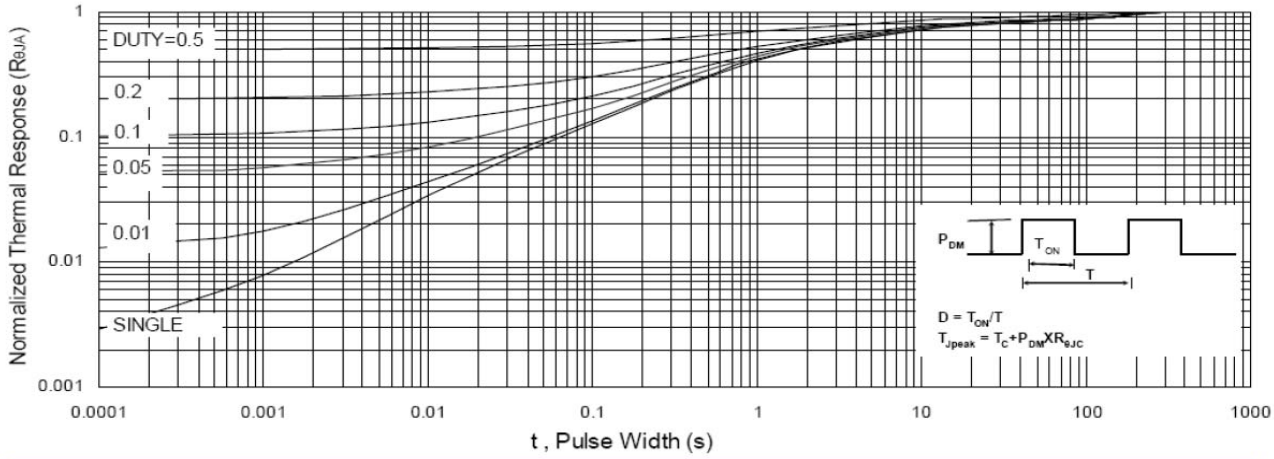


Fig.9 Normalized Maximum Transient Thermal Impedance

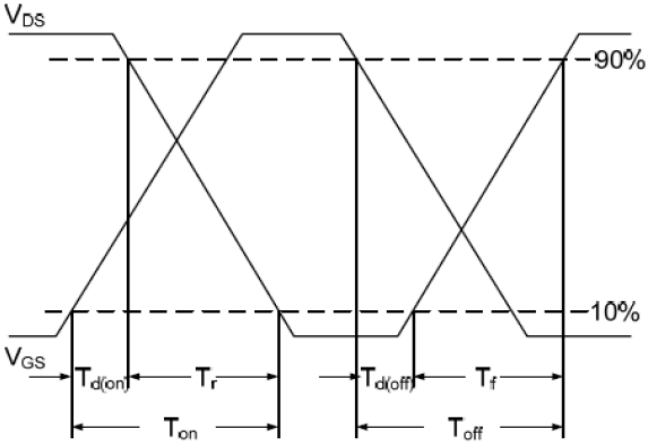


Fig.10 Switching Time Waveform

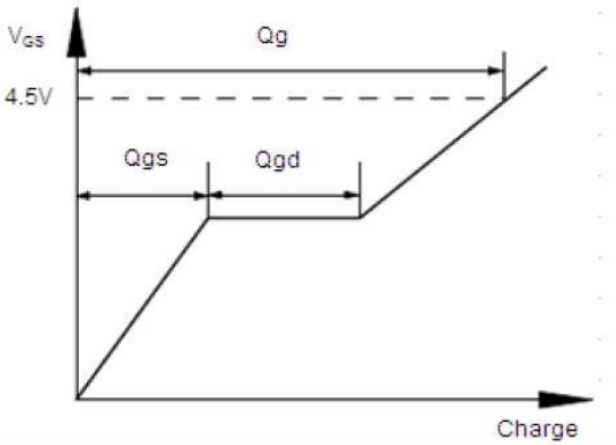


Fig.11 Gate Charge Waveform