Elektronische Bauelemente

SMG2328-C

100V, 2.4A, 170mΩ

N-Channel Enhancement Mode Power MOSFET

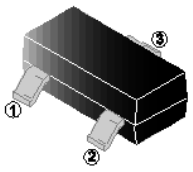
RoHS Compliant Product

A Suffix of "-C" specifies halogen & lead-free

DESCRIPTION

SMG2328-C utilizes advanced processing techniques to achieve the lowest possible on-resistance, extremely efficient and cost-effectiveness device. SMG2328-C is universally used for all commercial-industrial applications.

SC-59



FEATURES

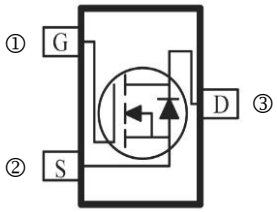
- Simple drive requirement
- Small package outline
- Super high density cell design for extremely low $R_{DS(ON)}$

MARKING

2328

PACKAGE INFORMATION

Package	MPQ	Leader Size
SC-59	3K	7 inch



ORDER INFORMATION

Part Number	Type
SMG2328-C	Lead (Pb)-free and Halogen-free

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

Parameter		Symbol	Rating	Unit
Drain–Source Voltage		V_{DSS}	100	V
Gate–Source Voltage		V_{GSS}	±20	V
Continuous Drain Current, V_{GS}=10V [3]	T_A=25°C	I_D	2.4	A
	T_A=70°C	I_D	1.9	A
Pulsed Drain Current [2]		I_{DM}	12	A
Total Power Dissipation [1]	t≦10s	P_D	1.5	W
	Steady State		1	
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~150	°C
Thermal Resistance				
Maximum Thermal Resistance from Junction to Ambient [3]		$R_{\theta JA}$	t≦10s, 85	°C / W
			Steady State, 125	
Maximum Thermal Resistance from Junction to Ambient [4]			270	

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

Parameter		Symbol	Min.	Typ.	Max.	Unit	Test Condition
Drain-Source Breakdown Voltage		BV_{DSS}	100	-	-	V	V_{GS}=0, I_D=250μA
Gate Threshold Voltage		$V_{GS(th)}$	1	1.8	2.5	V	V_{DS}=V_{GS}, I_D=250μA
Forward Tranconductance		g_{fs}	-	4	-	S	V_{DS}=15V, I_D=1.5A
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}=80V, V_{GS}=0
	T_J=55°C		-	-	10		V_{DS}=80V, V_{GS}=0
Drain-Source On-State Resistance [2]		$R_{DS(ON)}$	-	130	170	mΩ	V_{GS}=10V, I_D=1.5A
			-	140	180		V_{GS}=4.5V, I_D=1A
Total Gate Charge		Q_g	-	12.1	-	nC	V_{DS}=50V V_{GS}=4.5V I_D=2A
Gate-Source Charge		Q_{gs}	-	4.2	-		
Gate-Drain (“Miller”) Change		Q_{gd}	-	4.3	-		
Turn-on Delay Time [2]		$T_{d(ON)}$	-	9	-	nS	V_{DD}=50V V_{GS}=10V R_G=3.3Ω I_D=1A
Rise Time		T_r	-	9.4	-		
Turn-off Delay Time		$T_{d(OFF)}$	-	26.8	-		
Fall Time		T_f	-	2.6	-		
Input Capacitance		C_{ISS}	-	975	-	pF	V_{DS}=25V V_{GS}=0V f=1MHz
Output Capacitance		C_{OSS}	-	38	-		
Reverse Transfer Capacitance		C_{RSS}	-	27	-		
Source-Drain Diode							
Forward On Voltage [2]		V_{SD}	-	-	1.2	V	I_S=1A, V_{GS}=0
Continuous Source Current [3]		I_S	-	-	2.4	A	
Pulsed Source Current [2]		I_{SM}	-	-	12		

Notes:
1. Pulse width is limited by the maximum junction temperature.
2. Pulse width≦300μs, duty cycle≦2%.
3. The surface of the device is mounted on 1 in^2 copper pad of FR4 board.
4. When mounted on Min. copper pad.

CHARACTERISTIC CURVES

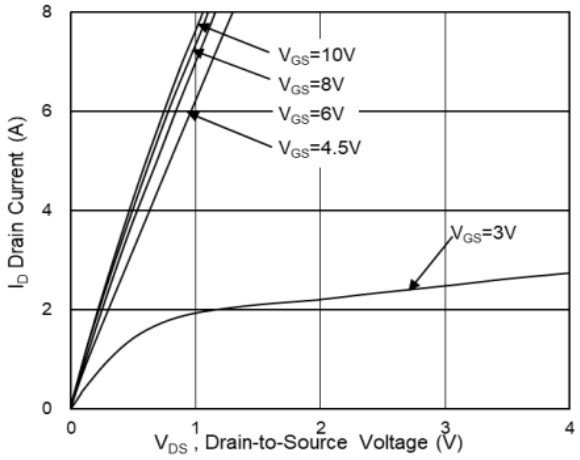


Fig.1 Typical Output Characteristics

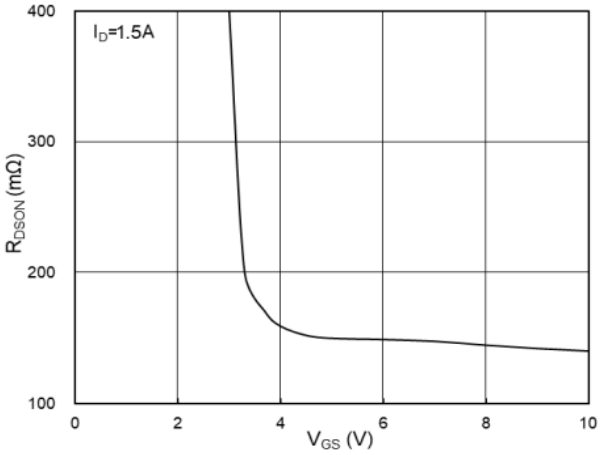


Fig.2 On-Resistance vs G-S Voltage

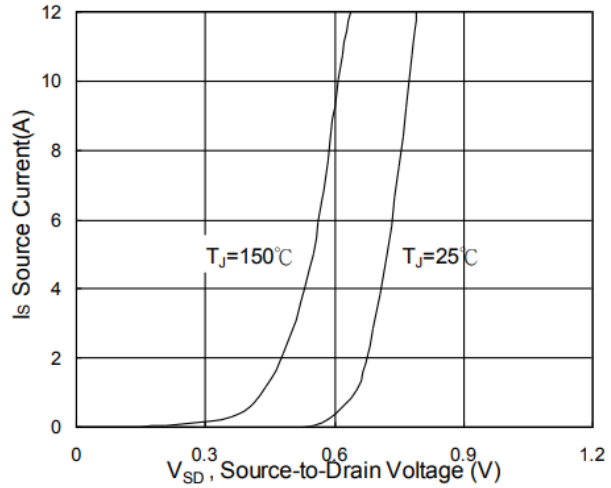


Fig.3 Source Drain Forward Characteristics

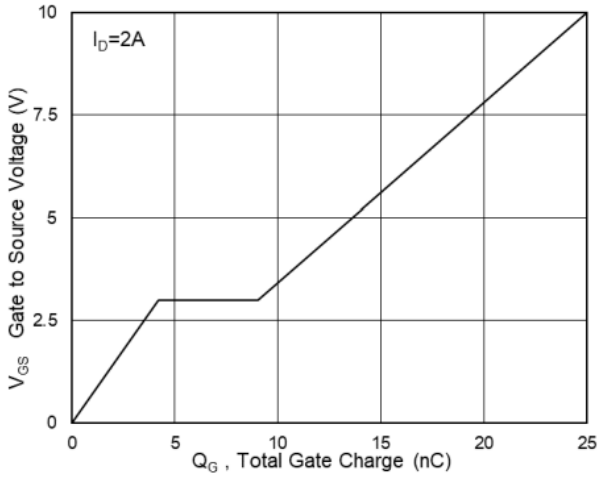


Fig.4 Gate-Charge Characteristics

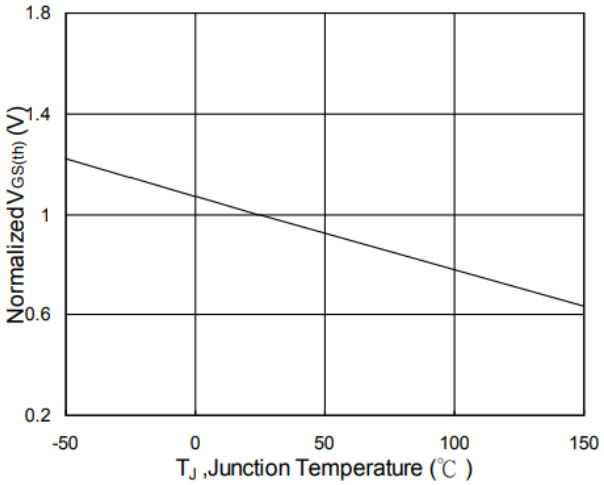


Fig.5 Normalized $V_{GS(th)}$ vs T_J

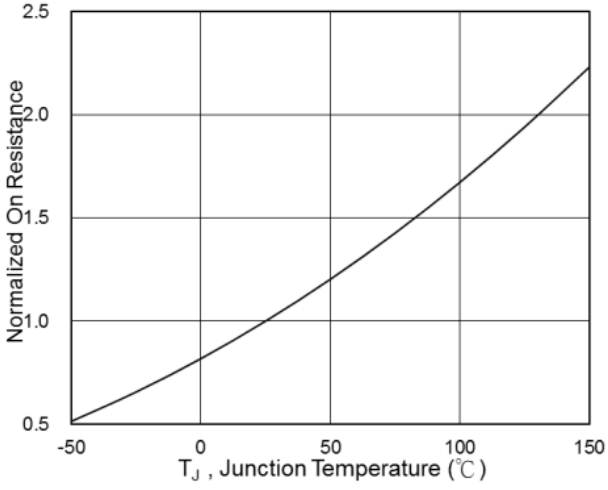


Fig.6 Normalized R_{DSON} vs T_J

CHARACTERISTIC CURVES

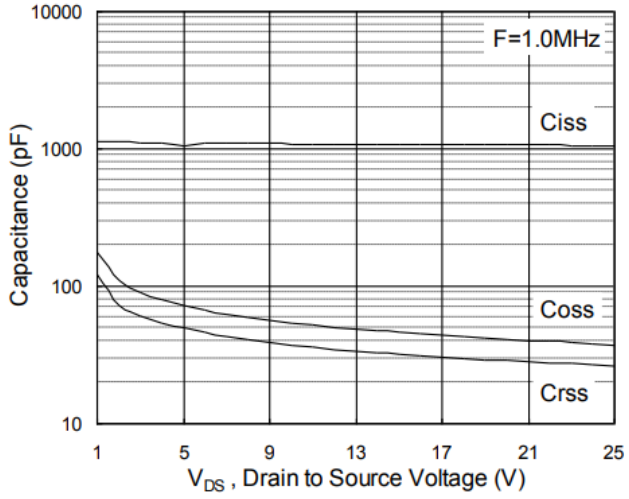


Fig.7 Capacitance

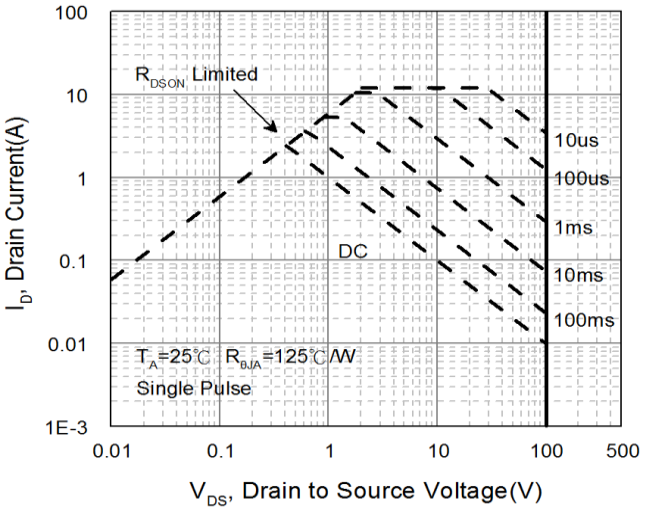


Fig.8 Safe Operating Area

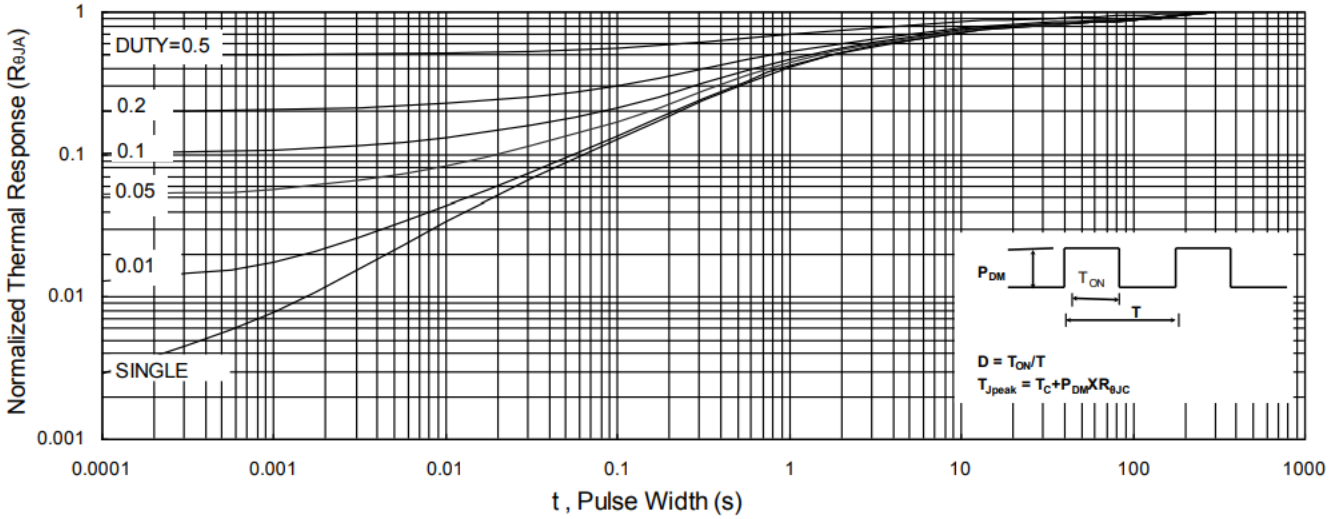


Fig.9 Normalized Maximum Transient Thermal Impedance

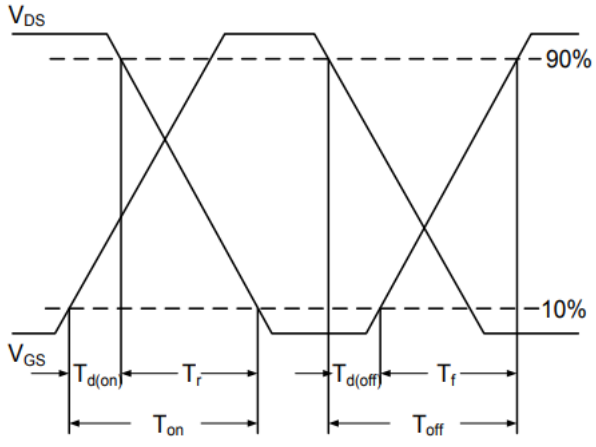


Fig.10 Switching Time Waveform

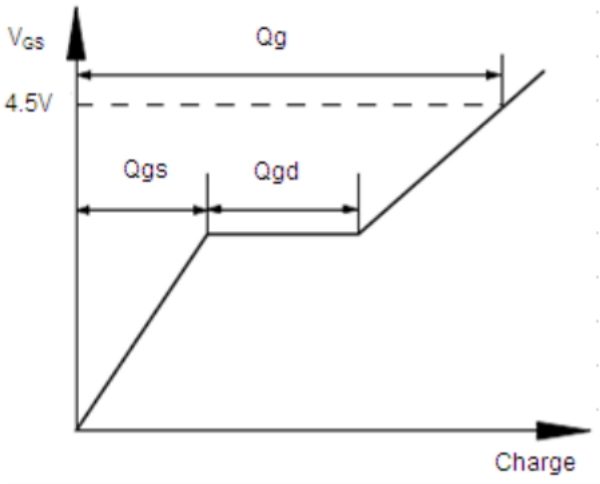
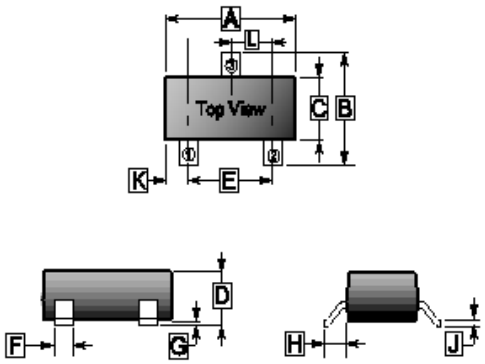


Fig.11 Gate Charge Waveform

PACKAGE OUTLINE DIMENSIONS

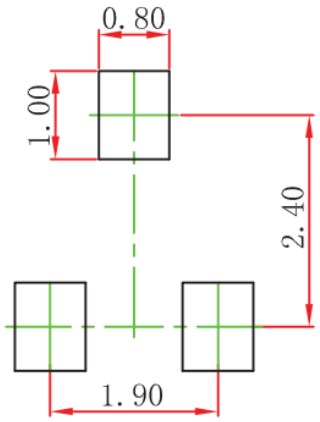
SC-59



REF.	Millimeter	
	Min.	Max.
A	2.70	3.10
B	2.10	3.00
C	1.20	1.70
D	0.89	1.40
E	2.00 TYP.	
F	0.30	0.50
G	0.10 REF.	
H	0.40 REF.	
J	0.047	0.207
K	0.50 REF.	
L	0.95 REF.	

MOUNTING PAD LAYOUT

SC-59



*Dimensions in millimeters