Elektronische Bauelemente

SMG3400

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

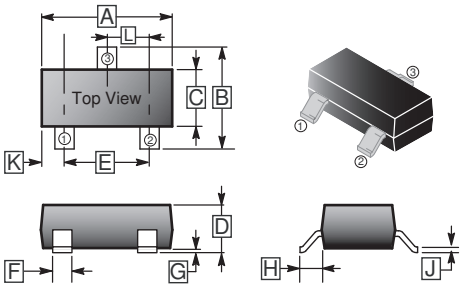
RoHS Compliant Product
A Suffix of "-C" specifies halogen & lead-free

DESCRIPTION

The SMG3400 uses advanced trench technology to provide excellent on-resistance extremely efficient and cost-effectiveness device.

The SMG3400 is universally used for all commercial-industrial applications.

SC-59



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.70	3.10	G	0.10 REF.	
B	2.25	3.00	H	0.40 REF.	
C	1.20	1.70	J	0.08	0.20
D	0.90	1.40	K	0.5 REF.	
E	1.70	2.30	L	0.95 REF.	
F	0.30	0.50			

FEATURES

- Lower Gate Charge
- Small Package Outline
- RoHS Compliant
- Green Device Available

MARKING

3400

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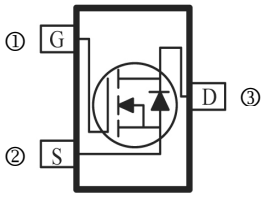

PACKAGE INFORMATION

Package	MPQ	Leader Size
SC-59	3K	7 inch

MAXIMUM RATINGS (T_A=25℃ unless otherwise specified)

Parameter		Symbol	Rating	Unit
Drain–Source Voltage		V_{DSS}	30	V
Gate–Source Voltage		V_{GSS}	±12	V
Continuous Drain Current [3]	T_A=25℃	I_D	5.8	A
	T_A=70℃		4.9	A
Pulsed Drain Current [1.2]		I_{DM}	30	A
Total Power Dissipation		P_D	1.38	W
Linear Derating Factor			0.01	W / ℃
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~150	℃
Thermal Resistance				
Maximum Thermal Resistance from Junction to Ambient [3]		$R_{\theta JA}$	90	℃ / W

ELECTRICAL CHARACTERISTICS (T_J=25℃ unless otherwise specified)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Test Condition
Drain-Source Breakdown Voltage		BV_{DSS}	30	-	-	V	V_{GS}=0, I_D = 250uA
Gate Threshold Voltage		$V_{GS(th)}$	0.7	-	1.4	V	V_{DS}=V_{GS}, I_D=250uA
Forward Transconductance		g_{fs}	-	15	-	S	V_{DS}=5V, I_D=5A
Gate-Source Leakage Current		I_{GSS}	-	-	±100	nA	V_{GS}= ±12V
Drain-Source Leakage Current	T_J=25℃	I_{DSS}	-	-	1	μA	V_{DS}=24V, V_{GS}=0
	T_J=55℃		-	-	5		V_{DS}=24V, V_{GS}=0
Static Drain-Source On-Resistance [2]		$R_{DS(ON)}$	-	-	28	mΩ	V_{GS}=10V, I_D=5.8A
			-	-	33		V_{GS}=4.5V, I_D=5A
			-	-	52		V_{GS}=2.5V, I_D=4A
Total Gate Charge		Q_g	-	9.7	-	nC	I_D=5.8A V_{DS}=15V V_{GS}=4.5V
Gate-Source Charge		Q_{gs}	-	1.6	-		
Gate-Drain (“Miller”) Charge		Q_{gd}	-	3.1	-		
Turn-on Delay Time [2]		$T_{d(on)}$	-	3.3	-	nS	V_{DS}=15V V_{GS}=10V R_G=3Ω R_L=2.7Ω
Rise Time		T_r	-	4.8	-		
Turn-off Delay Time		$T_{d(off)}$	-	26.3	-		
Fall Time		T_f	-	4.1	-		
Input Capacitance		C_{iss}	-	823	-	pF	V_{GS}=0V V_{DS}=15V f=1.0 MHz
Output Capacitance		C_{oss}	-	99	-		
Reverse Transfer Capacitance		C_{rss}	-	77	-		
Source-Drain Diode							
Forward On Voltage [2]		V_{SD}	-	-	1	V	I_S=1A, V_{GS}=0
Reverse Recovery Time [2]		T_{rr}	-	16	-	nS	I_S=5A,V_{GS}=0V,dI/dt=100A/s
Reverse Recovery Charge		Q_{rr}	-	8.9	-	nC	
Continuous Source Current		I_S	-	-	2.5	A	V_D=V_G=0V, V_S=1.0V

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；270 ℃ / W when mounted on Min. copper pad.

CHARACTERISTIC CURVES

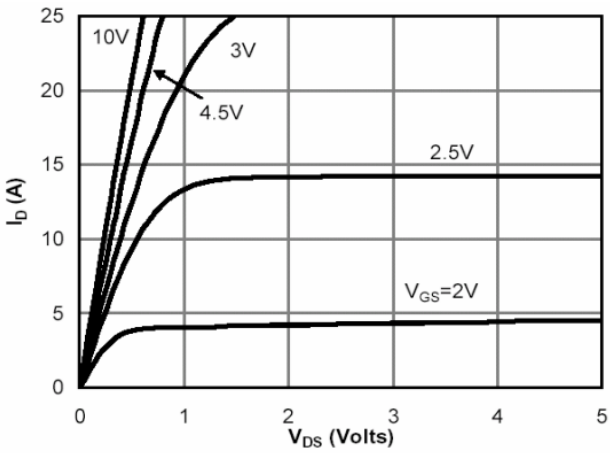

Fig 1. Typical Output Characteristics

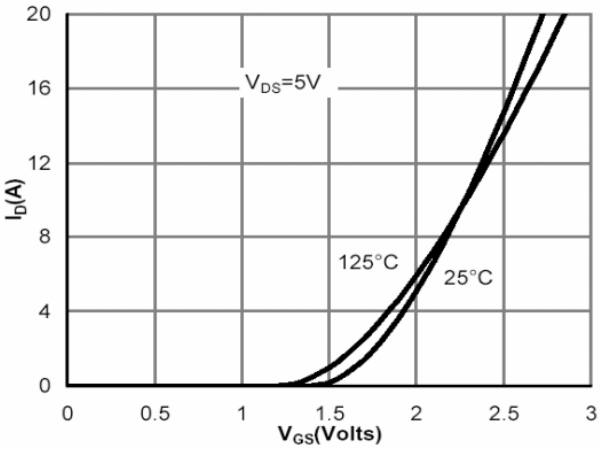

Fig 2. Typical Output Characteristics

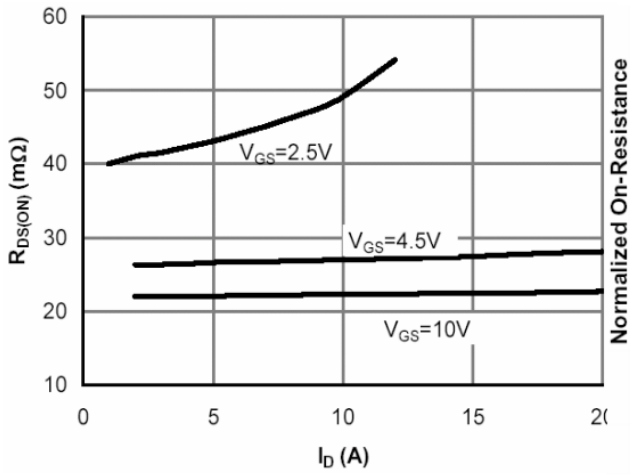

Fig 3. On-Resistance v.s. Gate Voltage

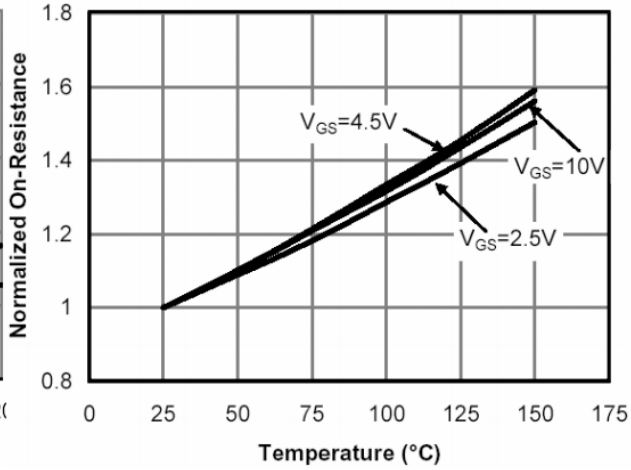

Fig 4. Normalized On-Resistance v.s. Junction Temperature

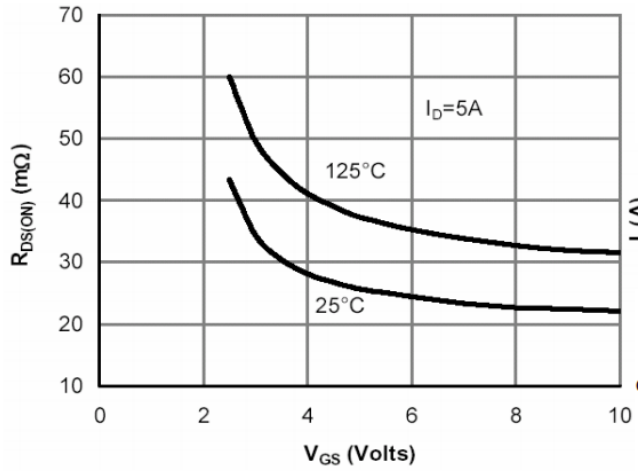

Fig 5. Forward Characteristics of Reverse Diode

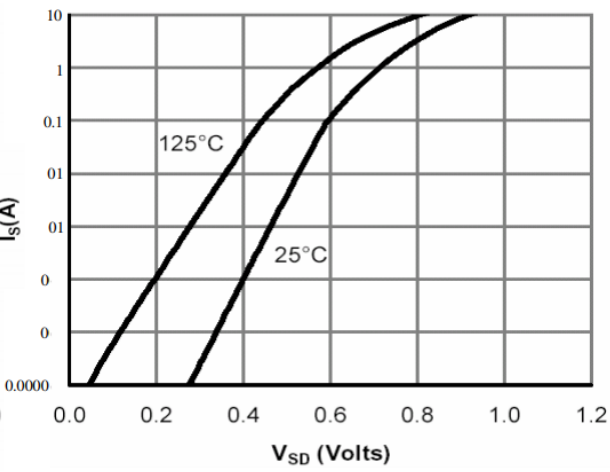

Fig 6. Gate Threshold Voltage v.s. Junction Temperature

CHARACTERISTIC CURVES

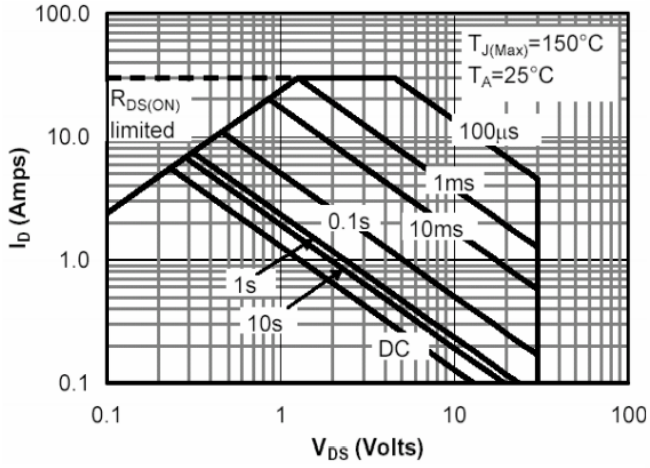

Fig 7. Gate Charge Characteristics

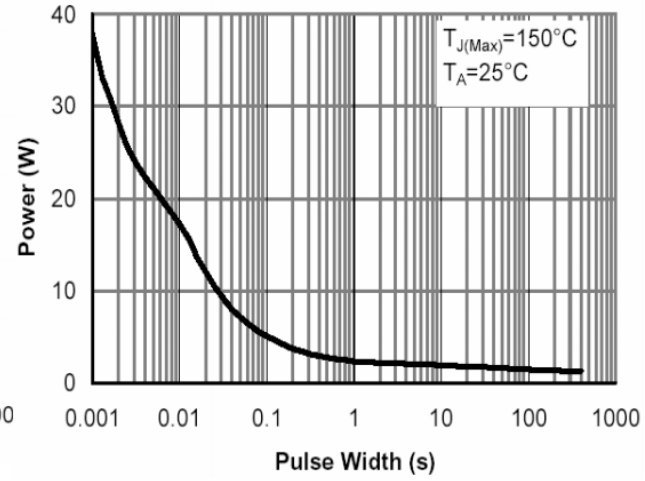

Fig 8. Typical Capacitance Characteristics

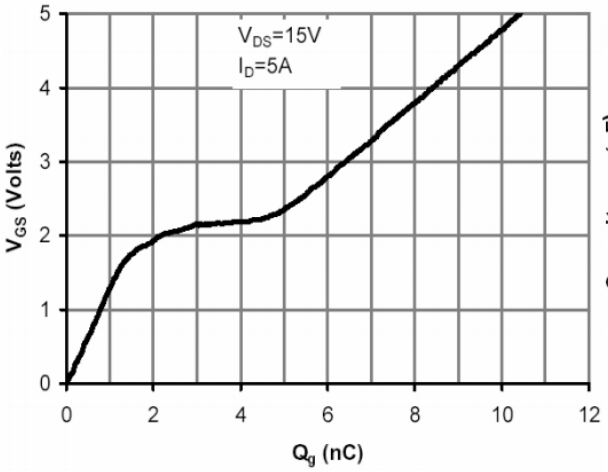

Fig 9. Transfer Characteristics

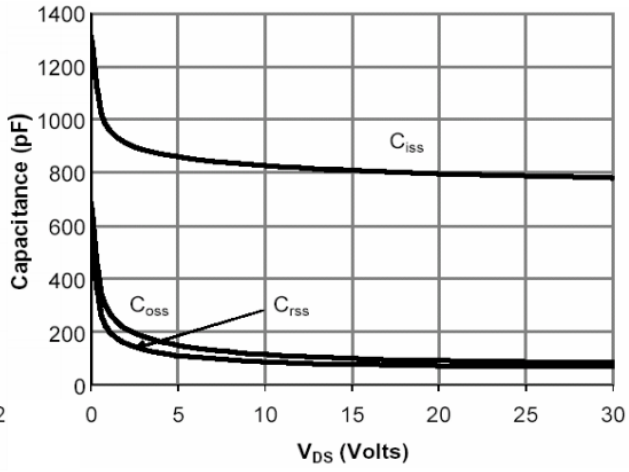

Fig 10. Single Pulse Power

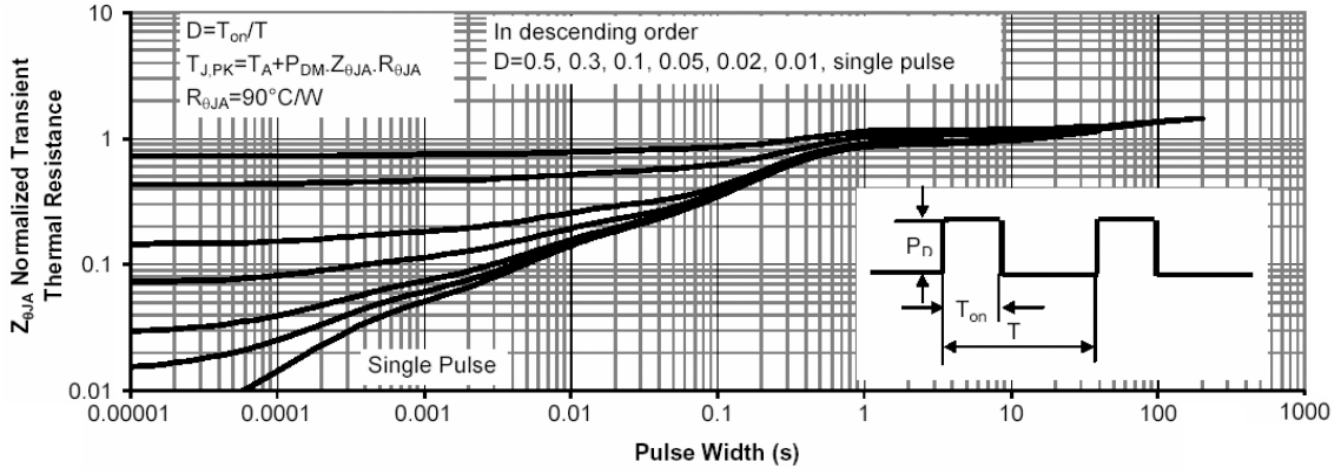

Fig 11. Normalized Thermal Transient Impedance, Junction to Ambient