Elektronische Bauelemente

SMG3215-C

1.25A, 150V, $R_{DS(ON)}$ 320mΩ
N-Channel Enhancement Mode MOSFET

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

FEATURES

- 150V/1.25A
  $R_{DS(ON)} \leqq 320m\Omega$ @V_{GS}=10V
  $R_{DS(ON)} \leqq 350m\Omega$ @V_{GS}=6V
- Reliable and Rugged
- Green Device Available

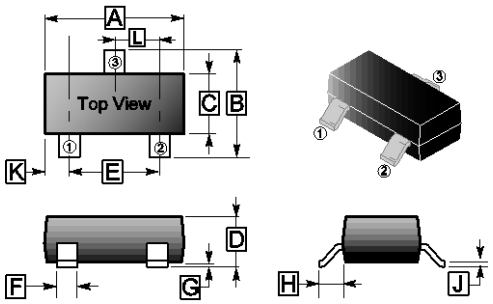
APPLICATION

Power Management in Notebook Computer,
Portable Equipment and Battery Powered Systems.

MARKING

3215

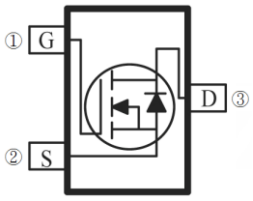
SC-59



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

PACKAGE INFORMATION

Package	MPQ	Leader Size
SC-59	3K	7 inch



ORDER INFORMATION

Part Number	Type
SMG3215-C	Lead (Pb)-free and Halogen-free

ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DS}	150	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current [1] @V_{GS}=10V	T_A=25°C	I_D	1.25	A
	T_A=70°C		1	
Pulsed Drain Current [3]		I_{DM}	5	A
Total Power Dissipation	T_A=25°C	P_D	1	W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~150	°C
Thermal Resistance Ratings				
Thermal Resistance Junction-Ambient [1]		$R_{\theta JA}$	125	°C/W
Thermal Resistance Junction-Ambient [2]			270	
Thermal Resistance Junction-Case [1]		$R_{\theta JC}$	80	

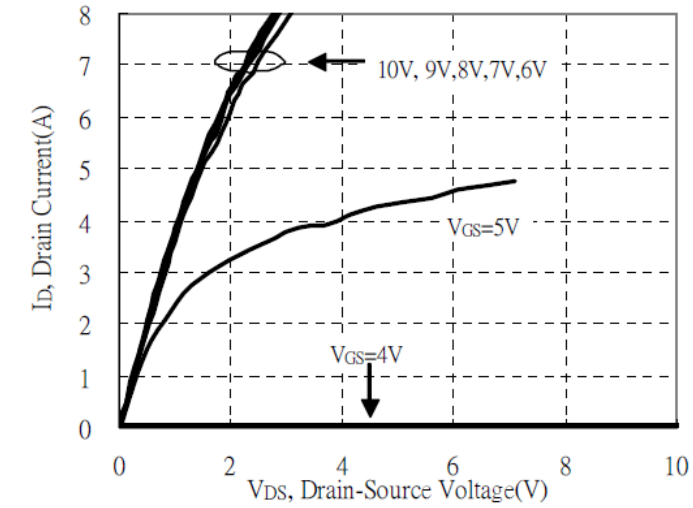
ELECTRICAL CHARACTERISTICS (T_J=25°C unless otherwise specified)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage		BV_{DSS}	150	-	-	V	V_{GS}=0, I_D=250μA
Gate Threshold Voltage		$V_{GS(th)}$	2	-	4	V	V_{DS}=V_{GS}, I_D=250μA
Forward Transconductance		g_{fs}	-	2.5	-	S	V_{DS}=15V, I_D=1A
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}=120V, V_{GS}=0
	T_J=55°C		-	-	10		
Static Drain-Source On-Resistance [4]		$R_{DS(ON)}$	-	260	320	mΩ	V_{GS}=10V, I_D=1A
			-	280	350		V_{GS}=6V, I_D=1A
Total Gate Charge		Q_g	-	7.5	-	nC	I_D=1A V_{DS}=75V V_{GS}=10V
Gate-Source Charge		Q_{gs}	-	1.5	-		
Gate-Drain Charge		Q_{gd}	-	2	-		
Turn-on Delay Time		$T_{d(on)}$	-	12	-	nS	V_{DS}=75V I_D=1A V_{GS}=10V R_G=6Ω
Rise Time		T_r	-	16	-		
Turn-off Delay Time		$T_{d(off)}$	-	32	-		
Fall Time		T_f	-	17	-		
Input Capacitance		C_{iss}	-	290	-	pF	V_{GS}=0 V_{DS}=30V f=1MHz
Output Capacitance		C_{oss}	-	30	-		
Reverse Transfer Capacitance		C_{rss}	-	12	-		
Source-Drain Diode							
Continuous Source Current [1]		I_S	-	-	1.25	A	
Pulsed Source Current [3]		I_{SM}	-	-	5		
Forward on Voltage [4]		V_{SD}	-	-	1.2	V	I_S=1A, V_{GS}=0
Reverse Recovery Time		t_{rr}	-	44.5	-	nS	I_F=1.25A, dI/dt=100A/μs T_J=25°C
Reverse Recovery Charge		Q_{rr}	-	15.8	-	nC	

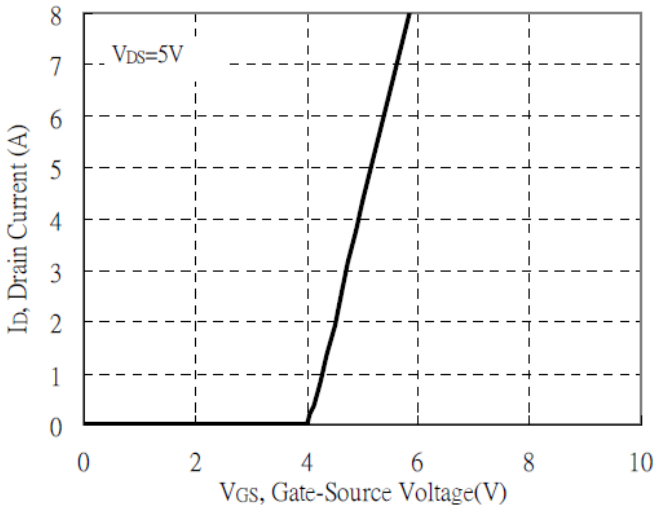
Notes:
1. Surface mounted on 1”x1” FR-4 board with 2oz copper.
2. When mounted on Min. copper pad.
3. Pulse width limited by maximum junction temperature, Pulse Width≦ 100μs, Duty Cycle≦ 1%.
4. Pulse Test: Pulse Width≦ 300μs, Duty Cycle≦ 2%.

CHARACTERISTIC CURVES

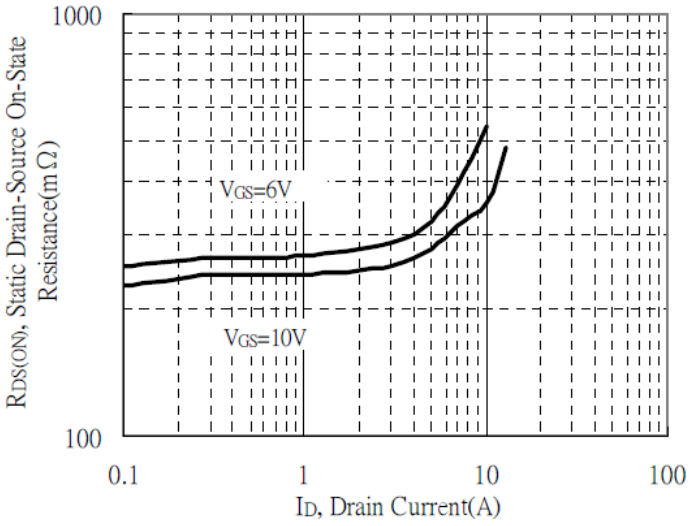
Typical Output Characteristics



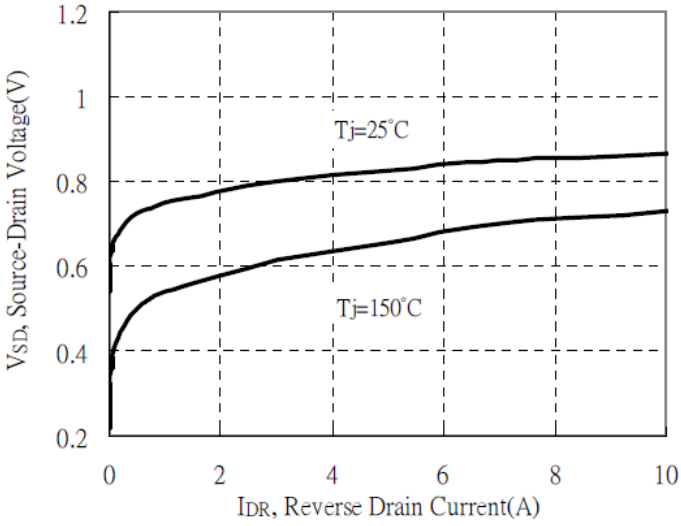
Typical Transfer Characteristics



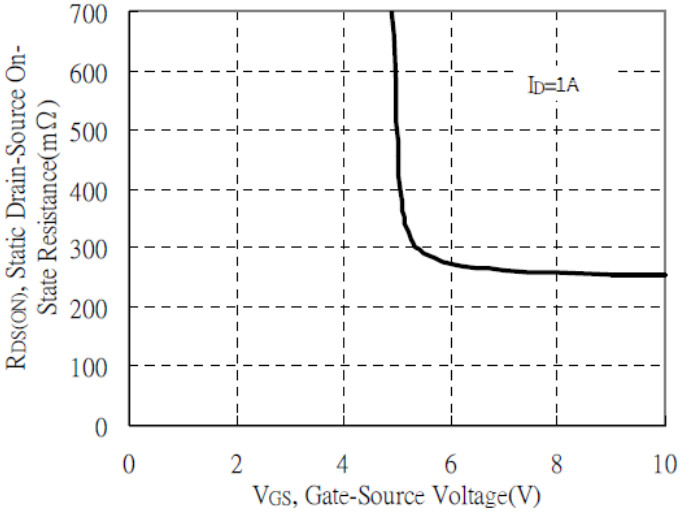
Static Drain-Source On-State resistance vs Drain Current



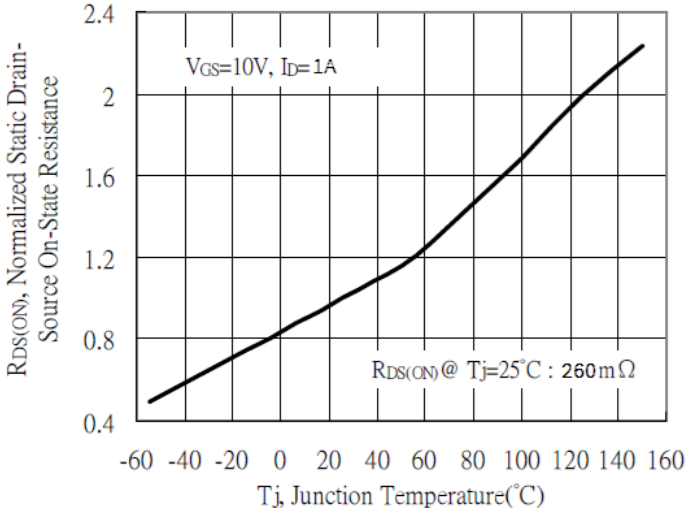
Reverse Drain Current vs Source-Drain Voltage



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

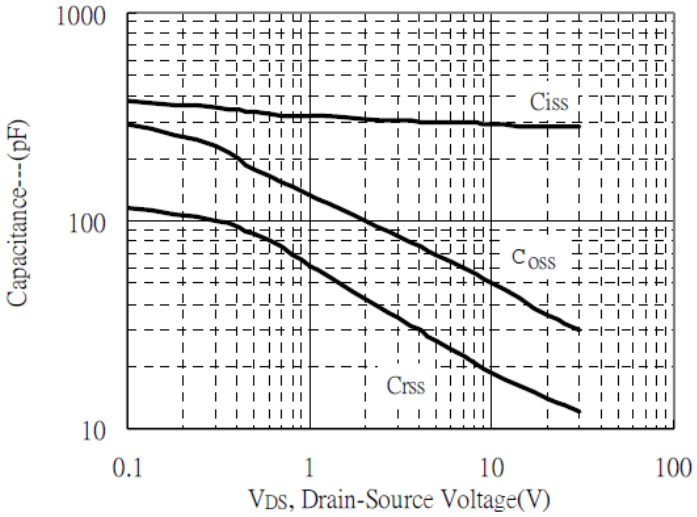


Drain-Source On-State Resistance vs Junction Tempearture

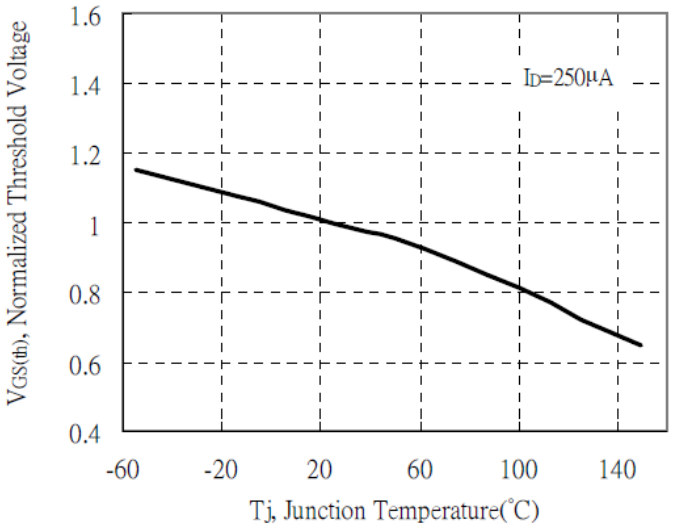


CHARACTERISTIC CURVES

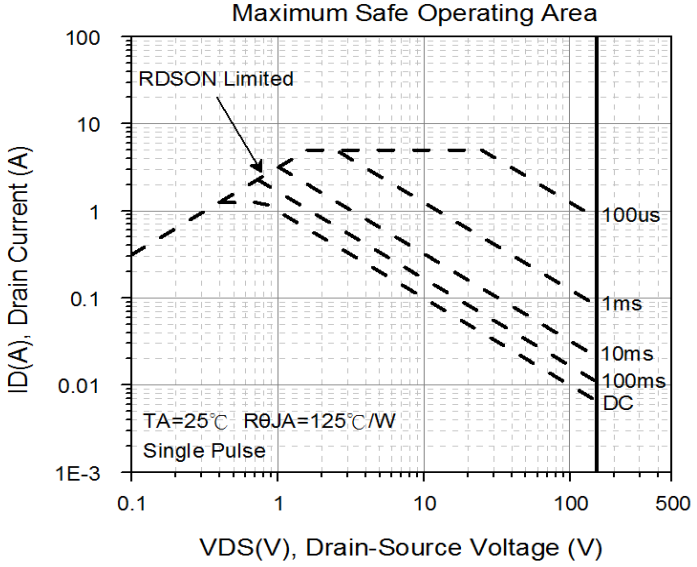
Capacitance vs Drain-to-Source Voltage



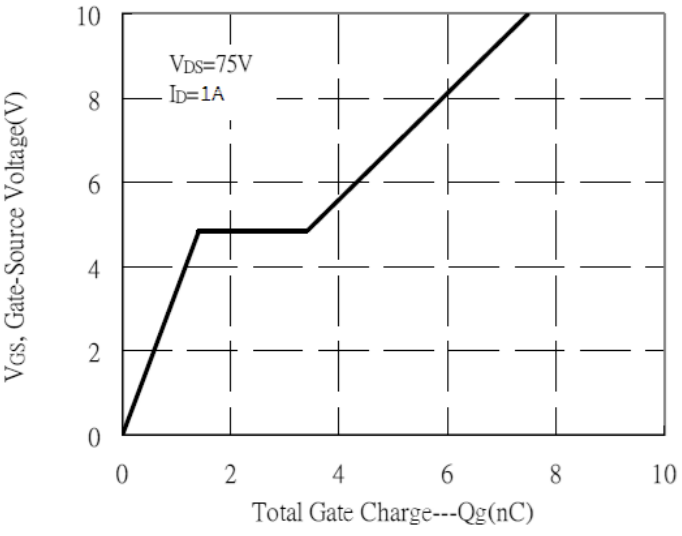
Threshold Voltage vs Junction Tempearture



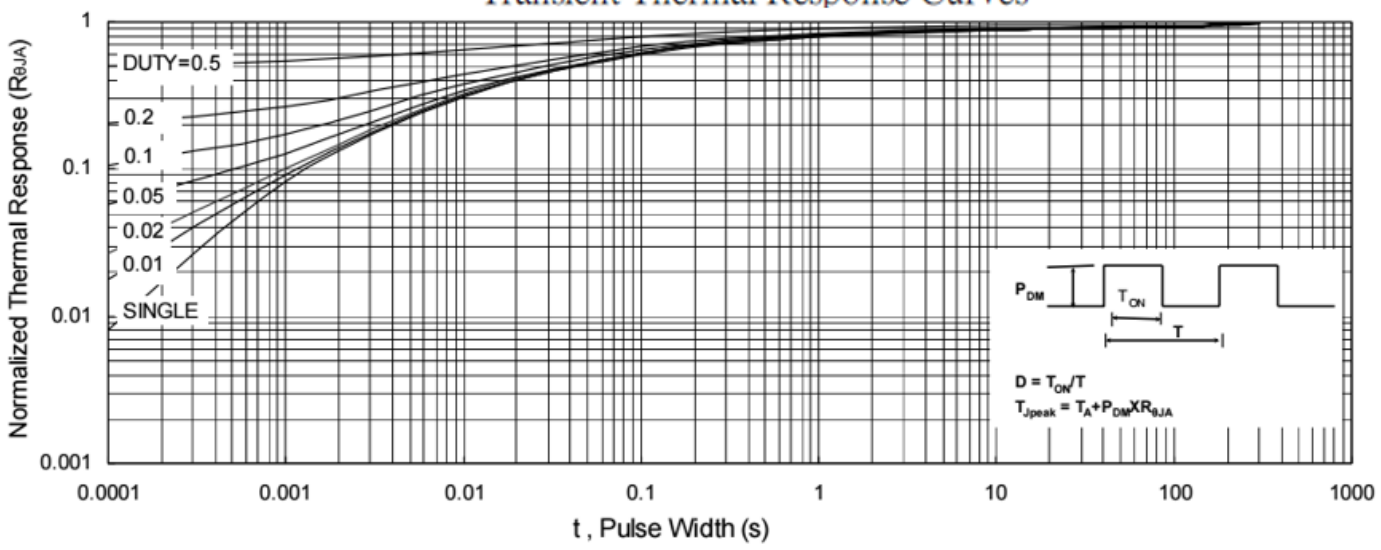
Maximum Safe Operating Area



Gate Charge Characteristics



Transient Thermal Response Curves



CHARACTERISTIC CURVES