

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

DESCRIPTION

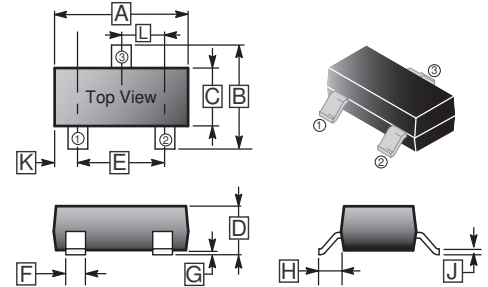
SMG3215B-C provides designers with the best combination of fast switching, low on-resistance and cost-effectiveness.

SC-59 package is universally used for all commercial-industrial surface mount applications.

FEATURES

- 150V/1.25A
 $R_{DS(ON)} \leq 320m\Omega @ V_{GS}=10V$
 $R_{DS(ON)} \leq 380m\Omega @ V_{GS}=4.5V$
- Reliable and rugged
- Green device available

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			

MARKING

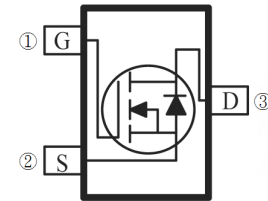
3215B

PACKAGE INFORMATION

Package	MPQ	Leader Size
SC-59	3K	7 inch

ORDER INFORMATION

Part Number	Type
SMG3215B-C	Lead (Pb)-free and Halogen-free



ABSOLUTE MAXIMUM RATINGS ($T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	150	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current, $V_{GS}=10V$ ¹	I_D	$T_A=25^\circ\text{C}$	1.25
		$T_A=70^\circ\text{C}$	1
Pulsed Drain Current ⁴	I_{DM}	6	A
Power Dissipation ³	P_D	1.31	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55~150	$^\circ\text{C}$
Thermal Resistance Rating			
Thermal Resistance Junction to Ambient ¹	$R_{\theta JA}$	$t \leq 5\text{sec}$	95
		Steady State	125
Thermal Resistance Junction to Ambient ²			270

ELECTRICAL CHARACTERISTICS ($T_J=25^\circ\text{C}$ unless otherwise specified)

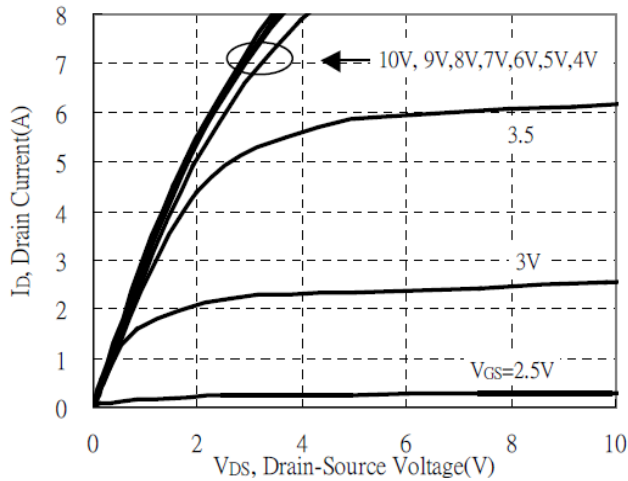
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Drain-Source Breakdown Voltage	BV_{DSS}	150	170	-	V	$V_{GS}=0, I_D=250\mu\text{A}$
Gate-Threshold Voltage	$V_{GS(th)}$	1	-	2.5	V	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$
Gate-Body Leakage Current	I_{GSS}	-	-	± 100	nA	$V_{GS}=\pm 20\text{V}$
Drain-Source Leakage Current	I_{DSS}	-	-	1	μA	$V_{DS}=120\text{V}, V_{GS}=0, T_J=25^\circ\text{C}$
		-	-	10		$V_{DS}=120\text{V}, V_{GS}=0, T_J=55^\circ\text{C}$
Drain-Source On-Resistance ⁴	$R_{DS(ON)}$	-	260	320	m Ω	$V_{GS}=10\text{V}, I_D=1.25\text{A}$
		-	290	380		$V_{GS}=4.5\text{V}, I_D=1\text{A}$
Forward Transfer conductance	g_{fs}	-	3.3	-	S	$V_{DS}=15\text{V}, I_D=1\text{A}$
Total Gate Charge	Q_g	-	8.1	-	nC	$V_{DS}=75\text{V}$ $V_{GS}=10\text{V}$ $I_D=1\text{A}$
Gate-Source Charge	Q_{gs}	-	1	-		
Gate-Drain ("Miller") Charge	Q_{gd}	-	1.9	-		
Turn-on Delay Time	$T_{d(on)}$	-	5.2	-	nS	$V_{DS}=75\text{V}$ $V_{GS}=10\text{V}$ $R_G=6\Omega$ $I_D=1\text{A}$
Rise Time	T_r	-	16.2	-		
Turn-off Delay Time	$T_{d(off)}$	-	20.8	-		
Fall Time	T_f	-	15.6	-		
Input Capacitance	C_{iss}	-	298	-	pF	$V_{GS}=0\text{V}$ $V_{DS}=30\text{V}$ $f=1\text{MHz}$
Output Capacitance	C_{oss}	-	32	-		
Reverse Transfer Capacitance	C_{rss}	-	19	-		
Source-Drain Diode Characteristic						
Diode Forward Voltage ⁴	V_{SD}	-	-	1.2	V	$I_S=1\text{A}, V_{GS}=0$
Continuous Source Current ¹	I_S	-	-	1.25	A	
Pulsed Source Current ³	I_{SM}	-	-	5		
Reverse Recovery Time	T_{RR}	-	45	-	nS	$I_F=1.25\text{A}, dI/dt=100\text{A}/\mu\text{s},$ $T_J=25^\circ\text{C}$
Reverse Recovery Charge	Q_{RR}	-	16	-	nC	

Notes:

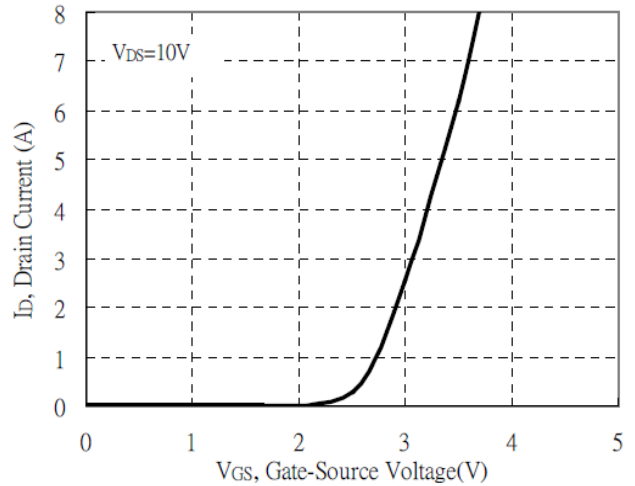
- Surface mounted on 1 inch² FR4 board with 2oz copper.
- When mounted on Min. copper pad.
- The power dissipation is limited by 150°C junction temperature.
- The data is tested by pulse: Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.

CHARACTERISTIC CURVES

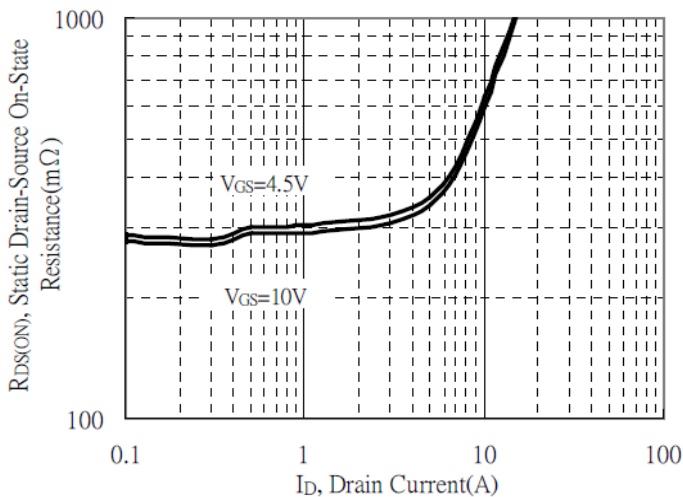
Typical Output Characteristics



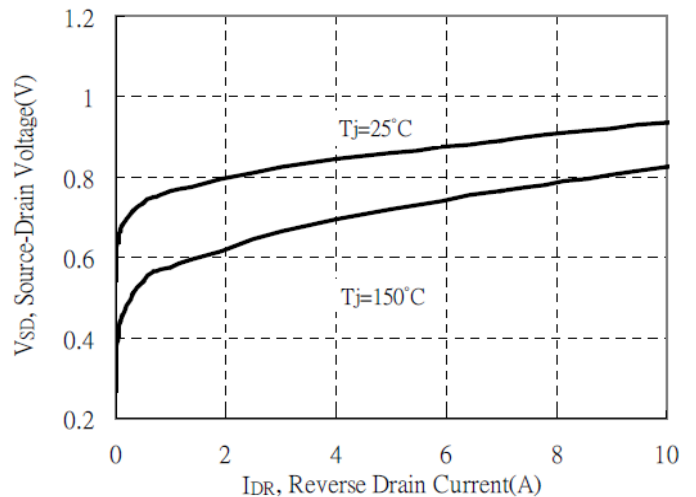
Typical Transfer Characteristics



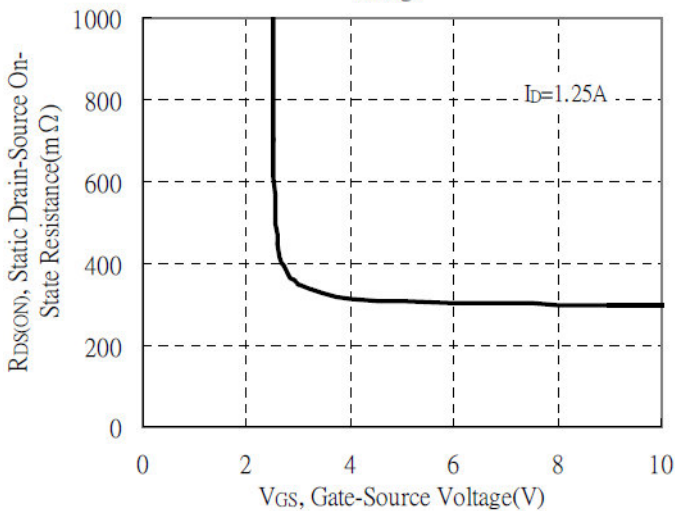
Static Drain-Source On-State resistance vs Drain Current



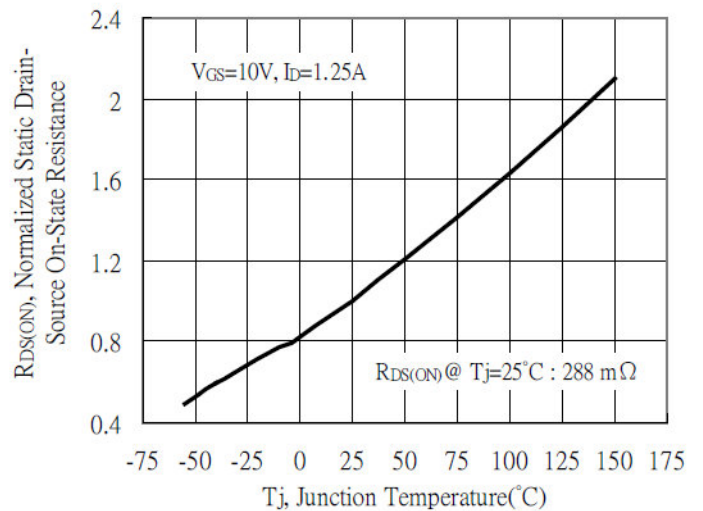
Reverse Drain Current vs Source-Drain Voltage



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

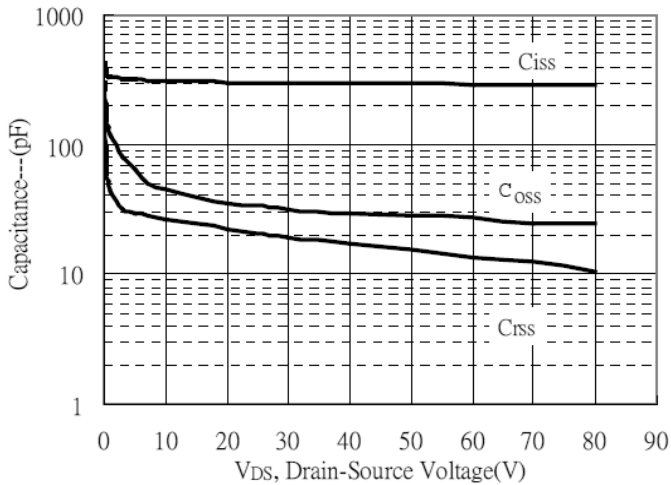


Drain-Source On-State Resistance vs Junction Temperature

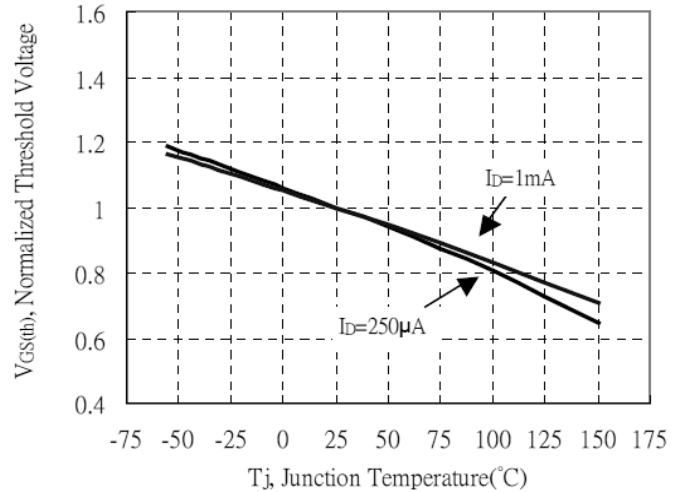


CHARACTERISTIC CURVES

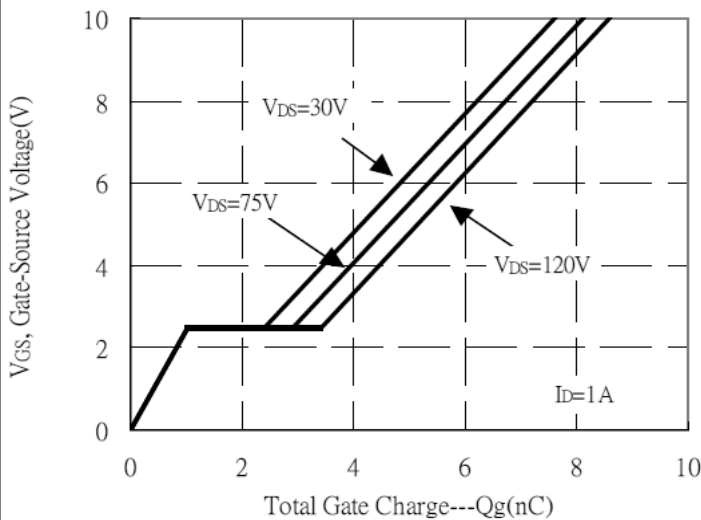
Capacitance vs Drain-to-Source Voltage



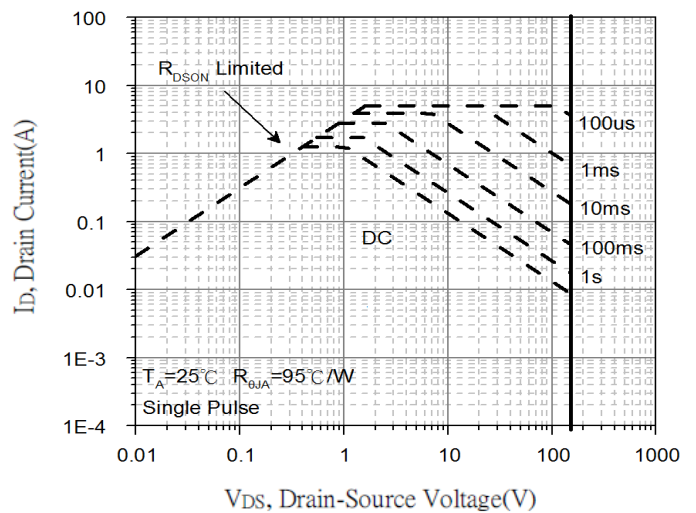
Threshold Voltage vs Junction Temperature



Gate Charge Characteristics



Maximum Safe Operating Area



Transient Thermal Response Curves

