Elektronische Bauelemente

SMG2007-C

-7.2A , -20V , $R_{DS(ON)}$ 19mΩ
P-Channel Enhancement Mode MOSFET

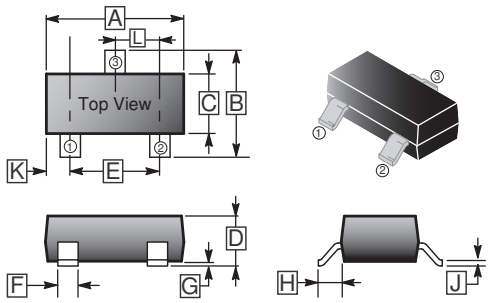
RoHS Compliant Product
A suffix of "-C" specifies halogen and lead-free

FEATURES

The SMG2007-C provide the designer with the best combination of fast switching, ruggedized device design, low on-resistance and cost-effectiveness.

The SC-59 package is universally preferred for all commercial-industrial surface mount applications and suited for low voltage applications such as DC/DC converters.

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	0.5 REF.	
E	2.00 Typ.		L	0.95 REF.	
F	0.30	0.50			

APPLICATIONS

- Simple Drive Requirement
- Lower On-resistance
- Fast Switching

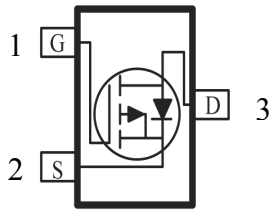
MARKING

2007

PACKAGE INFORMATION

Package	MPQ	Leader Size
SC-59	3K	7 inch

TOP VIEW



ORDER INFORMATION

Part Number	Type
SMS2007-C	Lead (Pb)-free and Halogen-free

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

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DS}	-20	V
Gate-Source Voltage		V_{GS}	±12	V
Continuous Drain Current [1] @V_{GS}= -4.5V	T_C=25°C	I_D	-7.2	A
	T_C=100°C		-5	
	T_A=25°C		-4.7	
	T_A=70°C		-3.8	
Pulsed Drain Current [3]		I_{DM}	-20	A
Power Dissipation	T_A=25°C	P_D	1.38	W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~150	°C
Thermal Resistance Rating				
Maximum Junction to Ambient [1]		$R_{\theta JA}$	t≦5sec , 90	°C / W
			Steady State , 125	
Maximum Junction to Ambient [2]		$R_{\theta JA}$	270	
Thermal Resistance Junction to Case [1]		$R_{\theta JC}$	80	

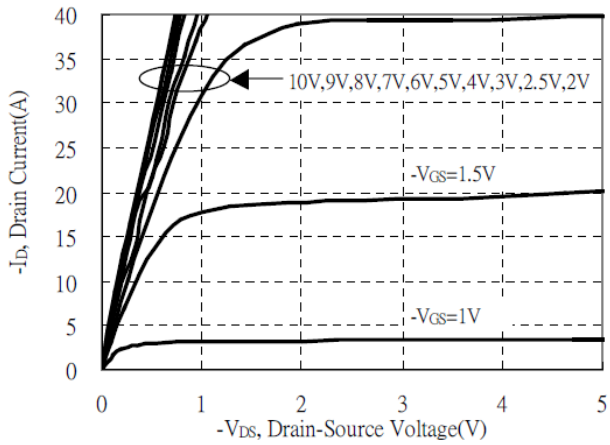
ELECTRICAL CHARACTERISTICS (T_J=25°C unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	BV_{DSS}	-20	-	-	V	V_{GS}=0, I_D= -250uA
Gate-Source Threshold Voltage	$V_{GS(th)}$	-0.3	-	-0.9	V	V_{DS}=V_{GS}, I_D= -250uA
Forward Transconductance	g_{fs}	-	19.1	-	S	V_{DS}= -5V, I_D= -4.5A
Gate-Body Leakage Current	I_{GSS}	-	-	±100	nA	V_{DS}=0,V_{GS}= ±12V
Drain-Source Leakage Current	I_{DSS}	-	-	-1	μA	V_{DS}= -20V, V_{GS}=0,T_J =25°C
		-	-	-5		V_{DS}= -20V, V_{GS}=0,T_J =55°C
Drain-Source On-Resistance	$R_{DS(ON)}$	-	-	19	mΩ	V_{GS}= -4.5V, I_D= -4A
		-	-	25		V_{GS}= -2.5V, I_D= -2A
		-	-	30		V_{GS}= -1.8V, I_D= -1A
Total Gate Charge	Q_g	-	24.5	-	nC	V_{DS}= -10V, V_{GS}= -4.5V, I_D= -4.5A
Gate-Source Charge	Q_{gs}	-	2.9	-		
Gate-Drain Charge	Q_{gd}	-	4.9	-		
Turn-on Delay Time	$T_{d(on)}$	-	6.8	-	nS	V_{DS}= -10V, V_{GS}= -4.5V, I_D= -1A, R_G=6Ω, R_L=10Ω
Rise Time	T_r	-	26.6	-		
Turn-off Delay Time	$T_{d(off)}$	-	222.8	-		
Fall Time	T_f	-	115.4	-		
Input Capacitance	C_{iss}	-	2100	-	pF	V_{DS}= -10V, V_{GS}=0, f=1.0MHz
Output Capacitance	C_{oss}	-	213	-		
Reverse Transfer Capacitance	C_{rss}	-	166	-		
Source-Drain Diode						
Continuous Source Current [1]	I_S			-1.7	A	
Pulsed Source Current [3]	I_{SM}			-10	A	
Forward On Voltage [4]	V_{SD}	-	-	-1.2	V	I_S= -1.7A, V_{GS}=0V
Reverse Recovery Time	T_{rr}	-	67.5	-	ns	I_S= -1.7A, V_{GS}=0V dI/dt=100A/μs
Reverse Recovery Charge	Q_{rr}	-	51.6	-	nC	

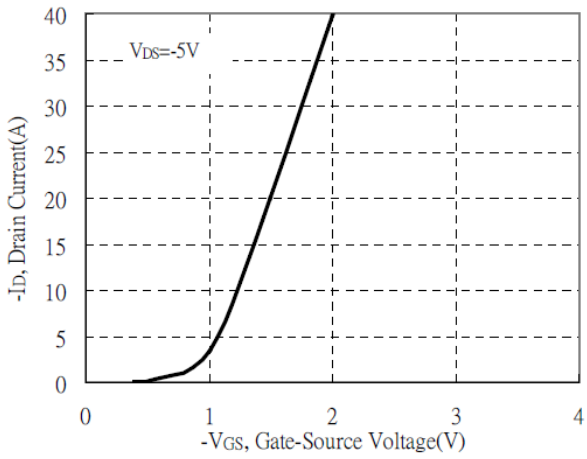
Notes:
1. Surface mounted on a 1 inch^2 FR-4 board with 2OZ copper.
2. When mounted on Min. copper pad.
3. Pulse width limited by maximum junction temperature , Pulse Width ≤300μs, Duty Cycle≤2%.
4. The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%

CHARACTERISTIC CURVES

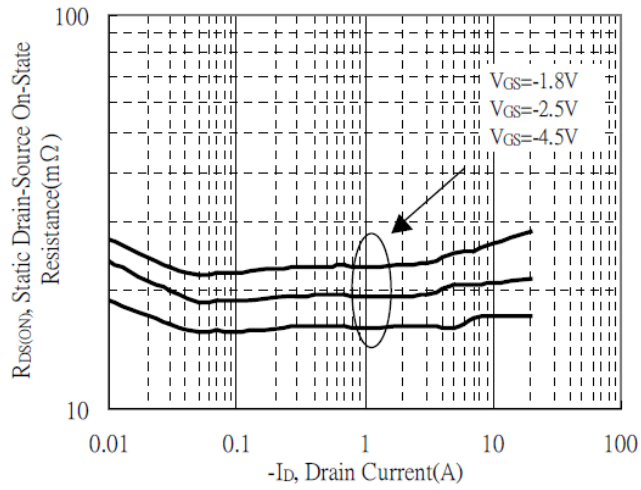
Typical Output Characteristics



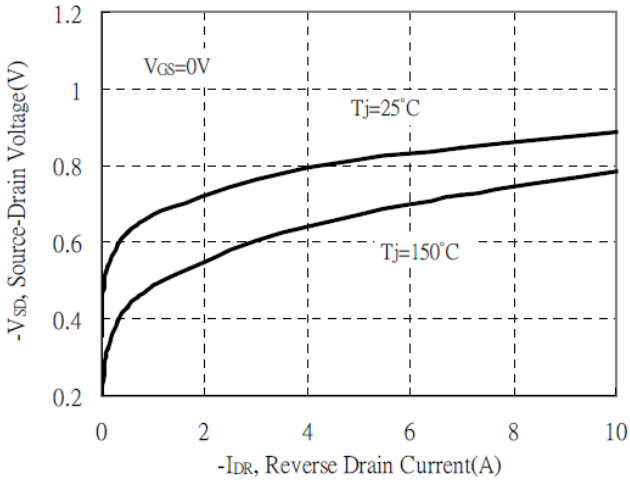
Typical Transfer Characteristics



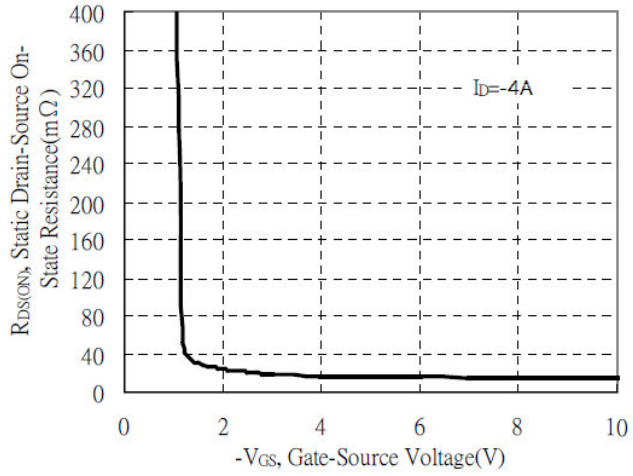
Static Drain-Source On-State resistance vs Drain Current



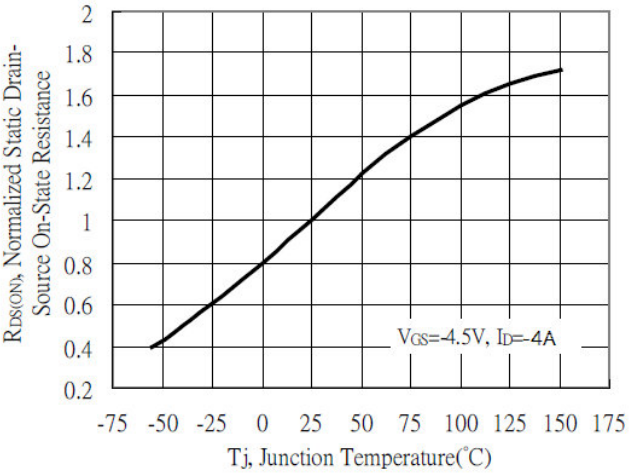
Reverse Drain Current vs Source-Drain Voltage



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

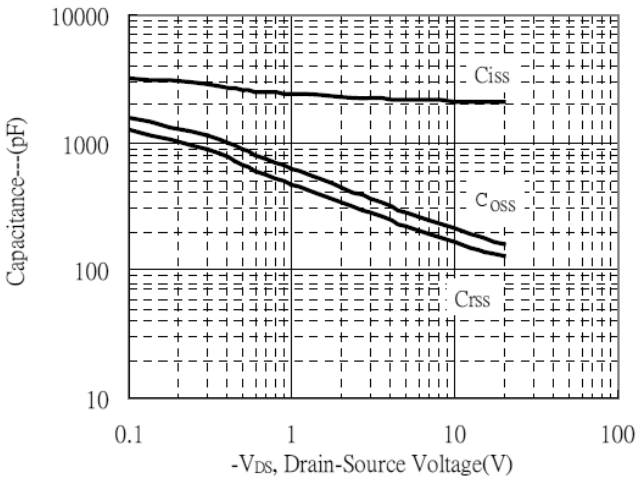


Drain-Source On-State Resistance vs Junction Tempearture

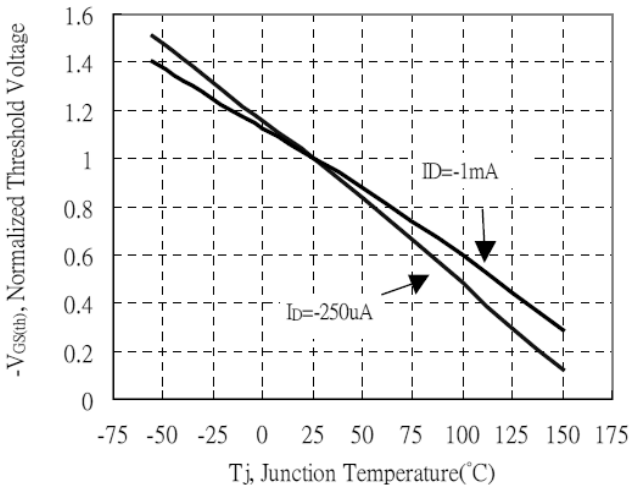


CHARACTERISTIC CURVES

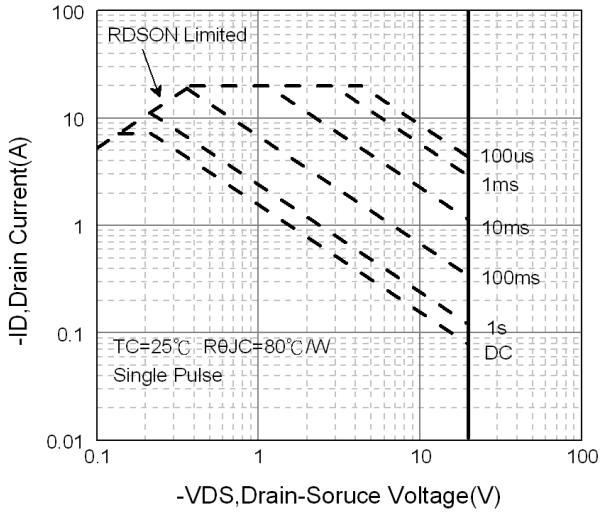
Capacitance vs Drain-to-Source Voltage



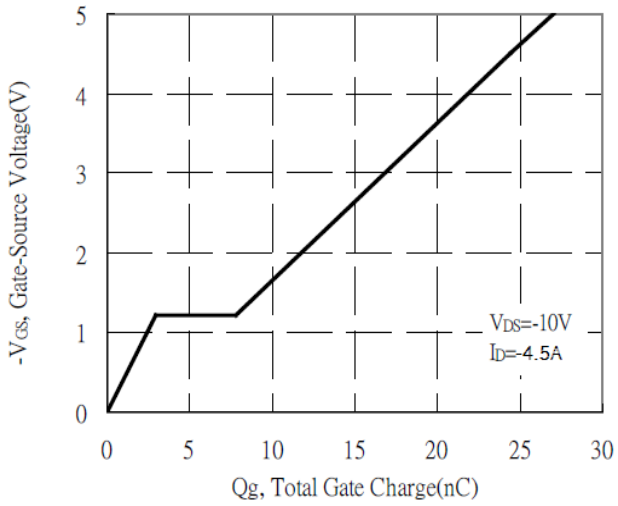
Threshold Voltage vs Junction Tempearture



Safe Operating Area



Gate Charge Characteristics



Transient Thermal Response Curves