Elektronische Bauelemente

SMG2343P-C

-3.6A, -30V, $R_{DS(ON)}$ 57mΩ

P-Channel Enhancement Mode Power MOSFET

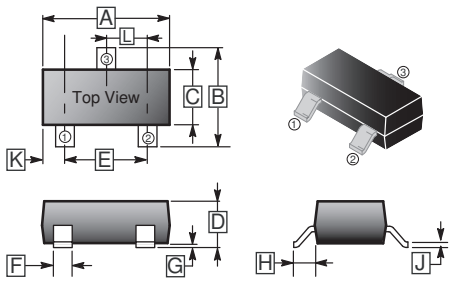
RoHS Compliant Product

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

DESCRIPTION

The miniature surface mount MOSFETs utilize a high cell density trench process to provide low $R_{DS(ON)}$ and to ensure minimal power loss and heat dissipation. Typical applications are DC-DC converters and power management inportable and battery-powered products such as computers, printers, PCMCIA cards, cellular and cordless telephones.

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			

FEATURES

- Low $R_{DS(ON)}$ Provides Higher Efficiency and Extends Battery Life
- Low Thermal Impedance Copper Leadframe SC-59 Saves Board Space
- Fast Switching Speed
- High Performance Trench Technology

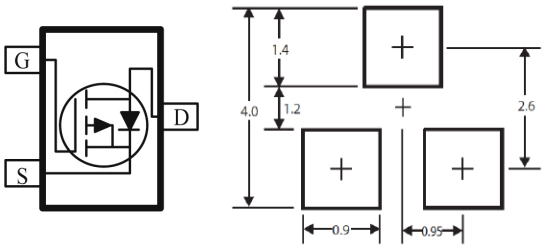
PACKAGE INFORMATION

Package	MPQ	Leader Size
SC-59	3K	7' inch

ORDER INFORMATION

Part Number	Type
SMG2343P-C	Lead (Pb)-free and Halogen-free

Mounting Pad Layout



*Dimensions in millimeters

ABSOLUTE MAXIMUM RATINGS (T_A=25℃ unless otherwise specified)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	±25	V
Continuous Drain Current [1]	T_A=25℃	I_D	-3.6	A
	T_A=70℃		-2.9	
Pulsed Drain Current [2]		I_{DM}	±10	A
Continuous Source Current (Diode Conduction) [1]		I_S	-0.4	A
Power Dissipation [1]	T_A=25℃	P_D	1.25	W
	T_A=70℃		0.8	
Operating Junction & Storage Temperature Range		T_J, T_{STG}	-55~150	℃
Thermal Resistance Data				
Maximum Thermal Resistance Junction-Ambient [1]	t≦5 sec	$R_{\theta JA}$	100	℃/W
	Steady State		150	

ELECTRICAL CHARACTERISTICS (T_A=25℃ unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Gate-Threshold Voltage	$V_{GS(th)}$	-0.8	-	-	V	V_{DS}=V_{GS}, I_D= -250μA
Forward Transconductance [3]	g_{fs}	-	2	-	S	V_{DS}= -5V,,I_D= -3.6A
Gate-Body Leakage	I_{GSS}	-	-	±100	nA	V_{DS}=0V, V_{GS}= ±20V
Zero Gate Voltage Drain Current	I_{DSS}	-	-	-1	μA	V_{DS}= -24V, V_{GS}=0V
		-	-	-10		V_{DS}= -24V, V_{GS}=0V, T_J=55℃
On-State Drain Current [3]	$I_{D(ON)}$	-2	-	-	A	V_{DS}= -5V, V_{GS}= -4.5V
Drain-Source On-Resistance [3]	$R_{DS(ON)}$	-	-	57	mΩ	V_{GS}= -10V, I_D= -3.6A
		-	-	89		V_{GS}= -4.5V, I_D= -2.8A
Diode Forward Voltage	V_{SD}	-	-0.7	-	V	I_S= -0.4A, V_{GS}=0V
Total Gate Charge	Q_g	-	6.4	-	nC	I_D= -3.6A V_{DS}= -10V V_{GS}= -5V
Gate-Source Charge	Q_{gs}	-	1.9	-		
Gate-Drain Charge	Q_{gd}	-	2.5	-		
Turn-On Delay Time	$T_{d(on)}$	-	10	-	nS	I_D= -1A V_{DS}= -15V V_{GEN}= -10V R_G=50Ω
Rise Time	T_r	-	2.8	-		
Turn-Off Delay Time	$T_{d(off)}$	-	53.6	-		
Fall Time	T_f	-	46	-		

Notes:
1. Surface Mounted on 1” x 1” FR-4 Board.
2. Pulse width limited by maximum junction temperature.
3. Pulse test: PW≦300μs, duty cycle≦2%.

CHARACTERISTIC CURVE

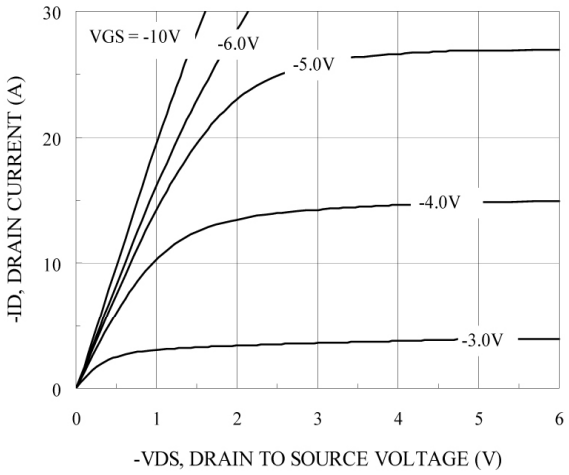


Figure 1. On-Region Characteristics

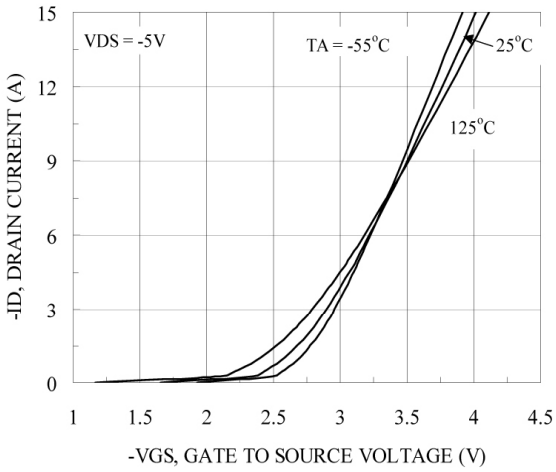


Figure 2. Body Diode Forward Voltage Variation with Source Current and Temperature

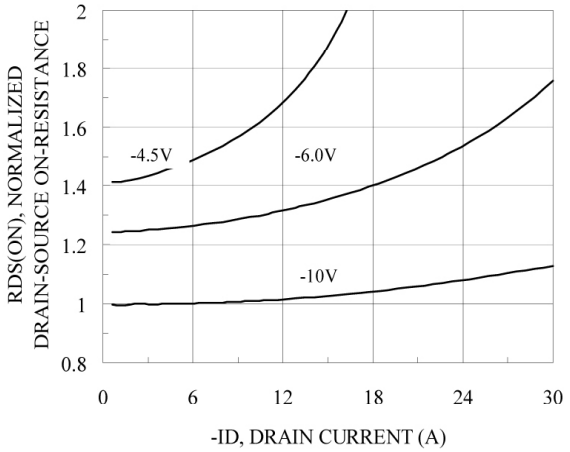


Figure 3. On Resistance Vs Vgs Voltage

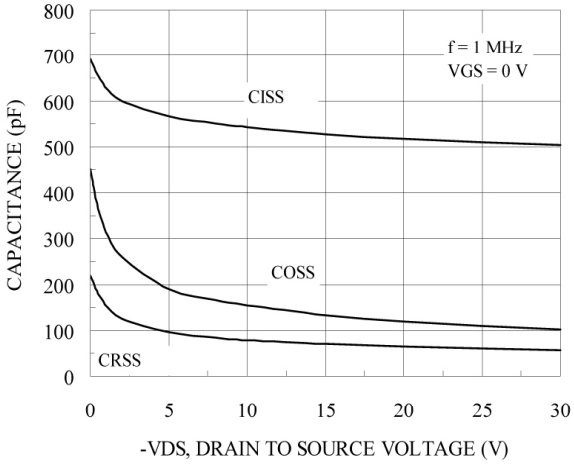


Figure 4. Capacitance Characteristics

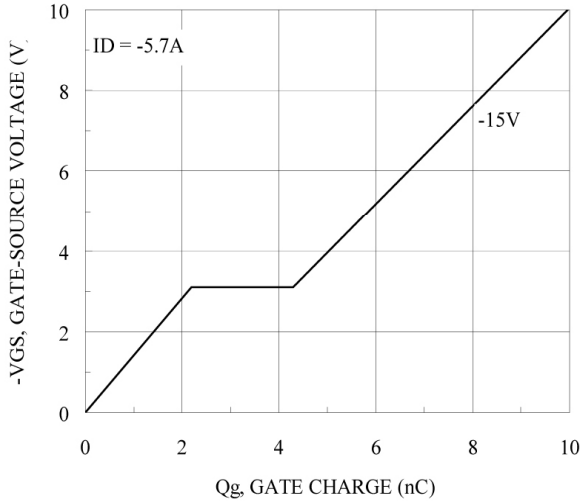


Figure 5. Gate Charge Characteristics

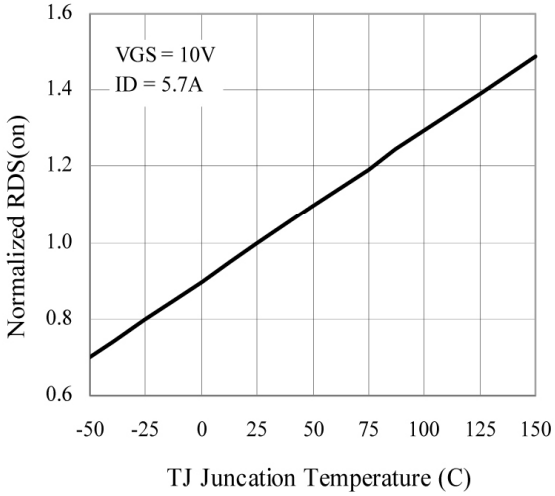


Figure 6. On-Resistance Variation with Temperature

CHARACTERISTIC CURVE

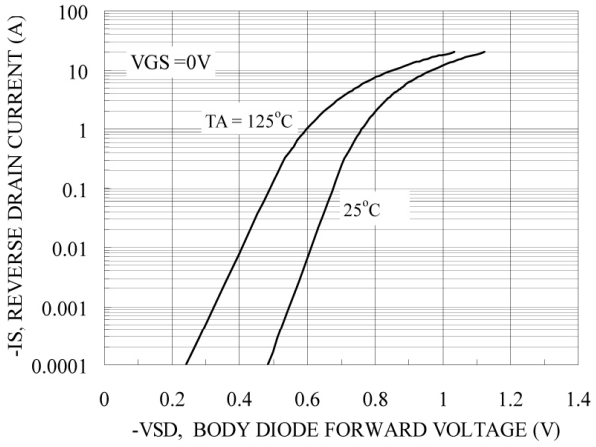


Figure 7. Transfer Characteristics

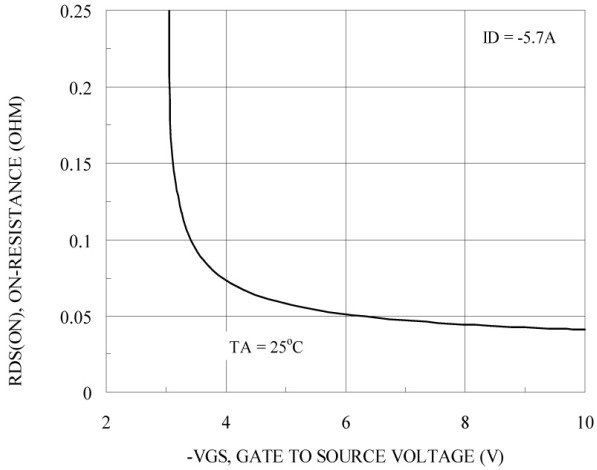


Figure 8. On-Resistance with Gate to Source Voltage

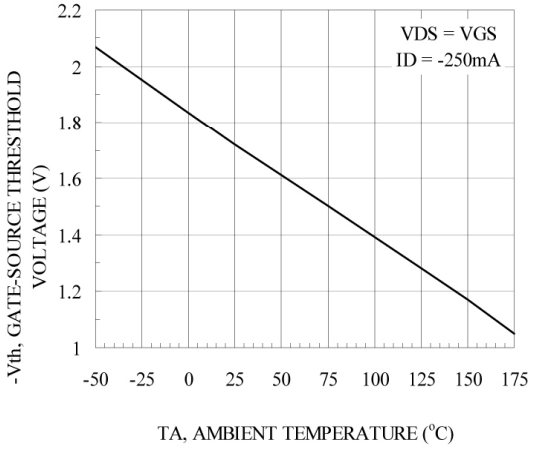


Figure 9. Vth Gate to Source Voltage Vs Temperature

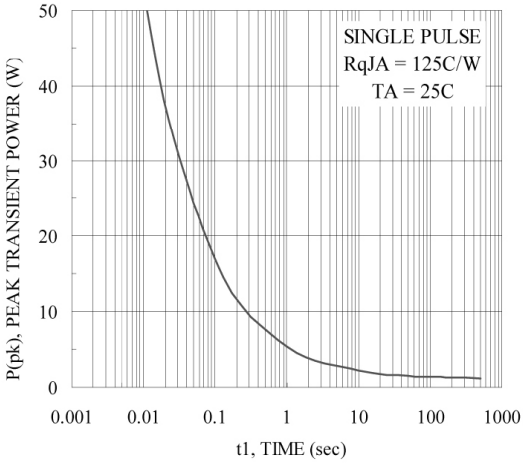


Figure 10. Single Pulse Maximum Power Dissipation

Normalized Thermal Transient Junction to Ambient

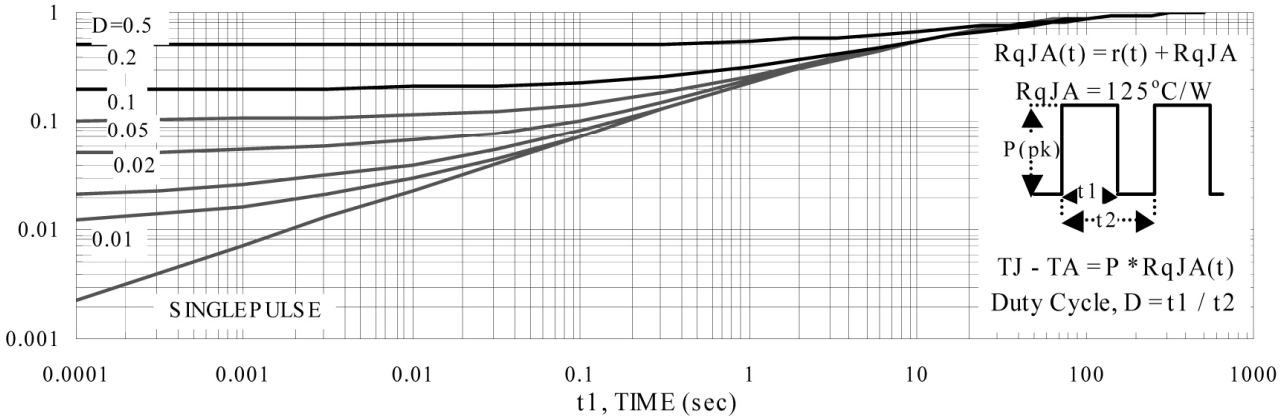


Figure 11. Transient Thermal Response Curve