Elektronische Bauelemente

SMG2327P

-3.6 A, -20 V, $R_{DS(ON)}$ 52 mΩ
P-Channel Enhancement MOSFET

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

DESCRIPTION

The miniature surface mount MOSFETs utilize high cell density process.Low $R_{DS(on)}$ assures minimal power loss and conserves energy, making this device ideal for use in power management circuitry.

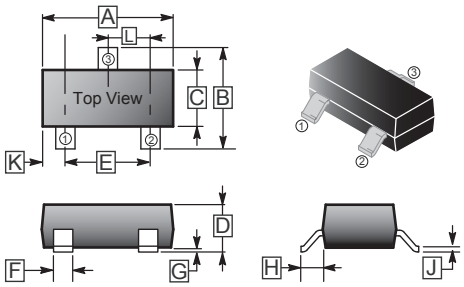
FEATURES

- Low $R_{DS(on)}$ provides higher efficiency and extends battery life.
- Miniature SC-59 surface mount package saves board space.
- Fast switching speed.
- High performance trench technology.

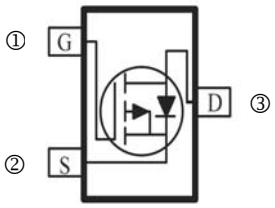
APPLICATION

DC-DC converters, power management in portable 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	2.25	3.00	H	0.40 REF.	
C	1.30	1.70	J	0.10	0.20
D	1.00	1.40	K	0.45	0.55
E	1.70	2.30	L	0.85	1.15
F	0.35	0.50			



PACKAGE INFORMATION

Package	MPQ	Leader Size
SC-59	3K	7 inch

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}	±8	V
Continuous Drain Current [1]	T_A=25°C	I_D	-3.6	A
	T_A=70°C		-1.8	
Pulsed Drain Current [2]		I_{DM}	-10	A
Continuous Source Current (Diode Conduction) [1]		I_S	±0.46	A
Power Dissipation [1]	T_A=25°C	P_D	1.25	W
	T_A=70°C		0.8	
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55 ~ 150	°C
Thermal Resistance Ratings				
Maximum Junction to Ambient [1]	t≦5 sec	$R_{\theta JA}$	100	°C/W
	Steady-State		150	

Notes
1 Surface Mounted on 1" x 1" FR4 Board.
2 Pulse width limited by maximum junction temperature.

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static						
Gate-Threshold Voltage	$V_{GS(th)}$	-0.7	-	-	V	V_{DS} = V_{GS}, I_D = -250μA
Gate-Body Leakage	I_{GSS}	-	-	±100	nA	V_{DS} =0, V_{GS}= ±8V
Zero Gate Voltage Drain Current	I_{DSS}	-	-	-1	μA	V_{DS} = -16V, V_{GS}=0
		-	-	-10		V_{DS} = -16V, V_{GS}=0, T_J=55°C
On-State Drain Current [1]	$I_{D(ON)}$	-10	-	-	A	V_{DS} = -5V, V_{GS}= -4.5V
Drain-Source On-Resistance [1]	$R_{DS(ON)}$	-	-	0.052	Ω	V_{GS}= -4.5V, I_D = -3.6A
		-	-	0.072		V_{GS}= -2.5V, I_D = -3.1A
		-	-	0.120		V_{GS}= -1.8V, I_D = -2.7A
Forward Transconductance [1]	g_{FS}	-	12	-	S	V_{DS}= -5V,,I_D = -1.25A
Diode Forward Voltage	V_{SD}	-	-0.60	-	V	I_S= -0.46A, V_{GS}=0
Dynamic [2]						
Total Gate Charge	Q_g	-	12	-	nC	I_D= -2.4A V_{DS}= -5V V_{GS}= -4.5V
Gate-Source Charge	Q_{gs}	-	2	-		
Gate-Drain Charge	Q_{gd}	-	2	-		
Input Capacitance	C_{ISS}	-	1312	-	pF	V_{DS}=-15V, V_{GS}=0V, f=1MHz
Output Capacitance	C_{OSS}	-	130	-		
Reverse Transfer Capacitance	C_{RSS}	-	106	-		
Turn-On Delay Time	$Td_{(ON)}$	-	6.5	-	nS	V_{DD}= -10V V_{GEN}= -4.5V R_G= 6Ω I_L= -1A
Rise Time	T_r	-	20	-		
Turn-Off Delay Time	$Td_{(OFF)}$	-	31	-		
Fall Time	T_f	-	21	-		

Notes
1 Pulse test：PW ≦ 300 us duty cycle ≦ 2%.
2 Guaranteed by design, not subject to production testing.

CHARACTERISTIC CURVE

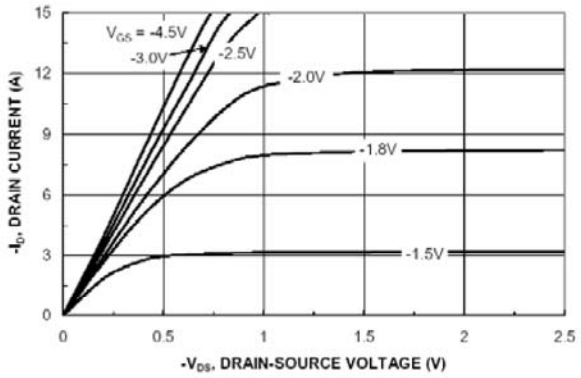


Figure 1. On-Region Characteristics

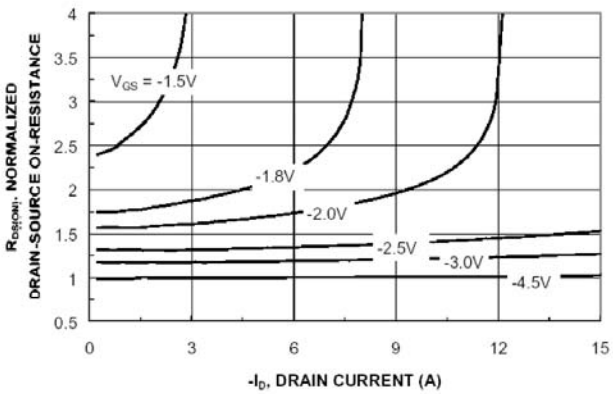


Figure 2. On-Resistance Variation with Drain Current and Gate Voltage

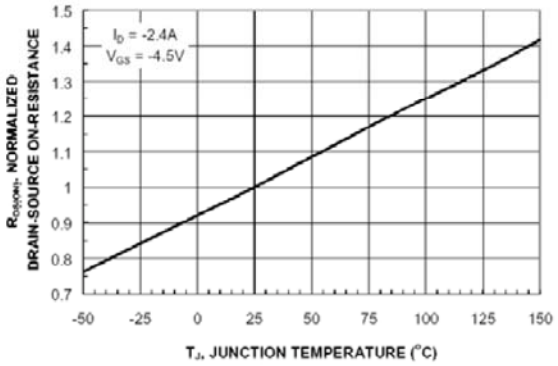


Figure 3. On-Resistance Variation with Temperature

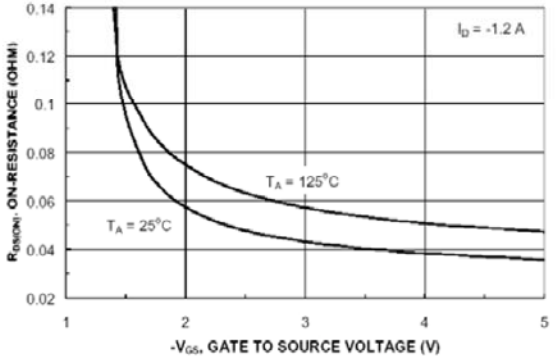


Figure 4. On-Resistance Variation with Gate to Source Voltage

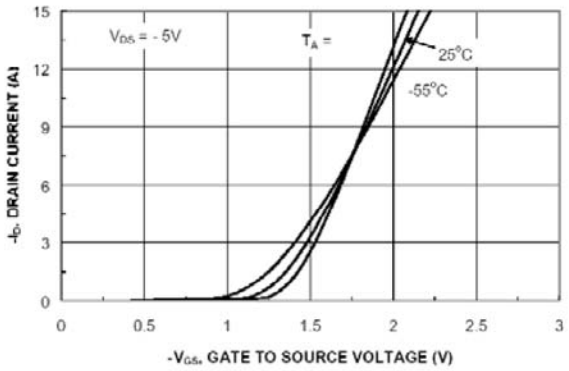


Figure 5. Transfer Characteristics

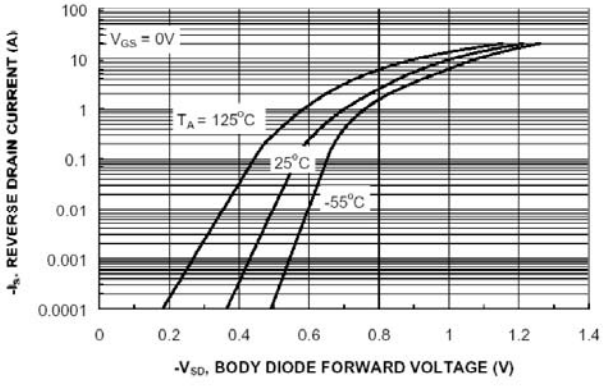


Figure 6. Body Diode Forward Voltage Variation with Source Current and Temperature

CHARACTERISTIC CURVE

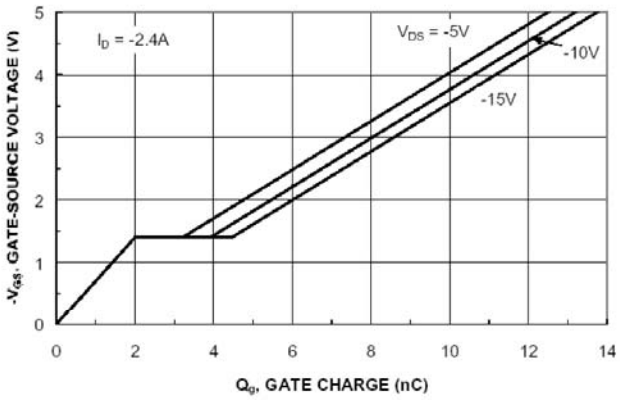


Figure 7. Gate Charge Characteristic

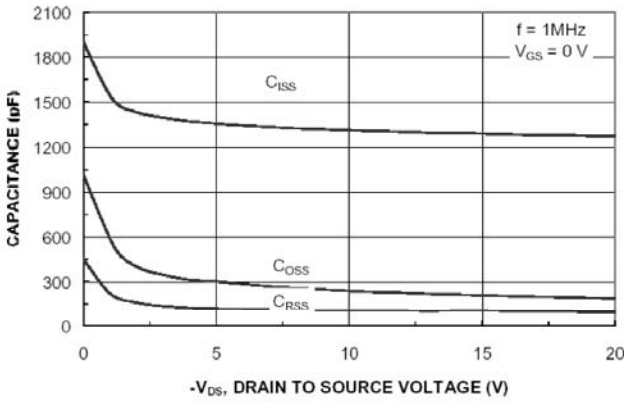


Figure 8. Capacitance Characteristic

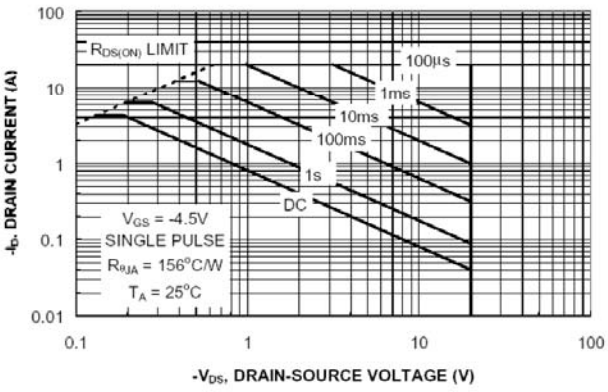


Figure 9. Maximum Safe Operating Area

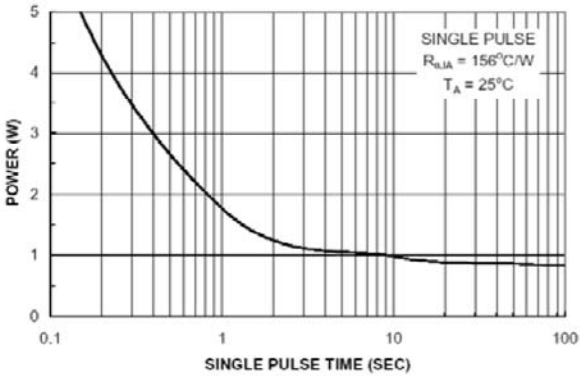


Figure 10. Single Pulse Maximum Power Dissipation

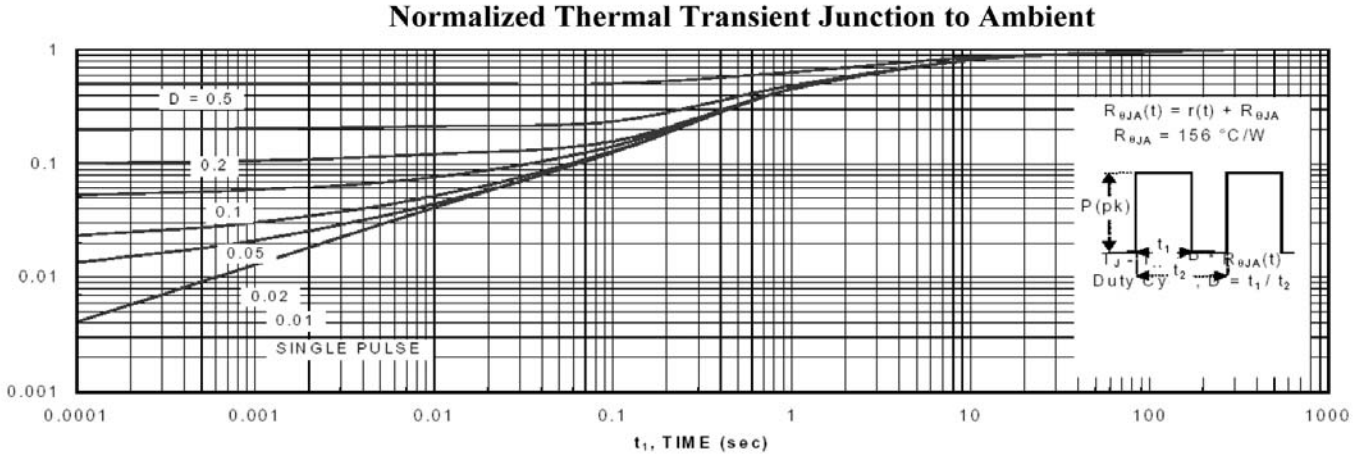


Figure 11. Transient Thermal Response Curve.