Elektronische Bauelemente

SMG2343PE

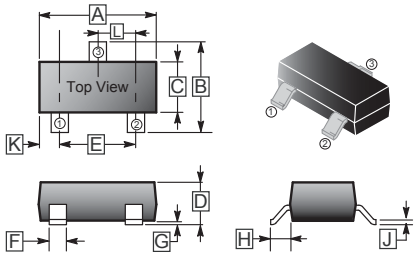
-3.6 A, -30 V, $R_{DS(ON)}$ 57 mΩ
P-Channel Enhancement MOSFET

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

SC-59

DESCRIPTION

These 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 in portable and battery-powered products such as computers, printers, PCMCIA cards, cellular and cordless telephones.



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.

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			

PRODUCT SUMMARY

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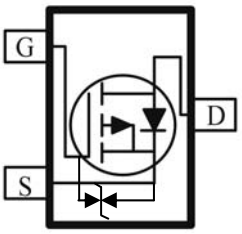
V_{DS}(V)	R_{DS}(on) (mΩ)	I_D(A)
-30	57@V_{GS}= -10V	-3.6
	89@V_{GS}= -4.5V	-2.8

PACKAGE INFORMATION

Package	MPQ	LeaderSize
SC-59	3K	7' inch

ESD
Protection Diode
2KV



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

PARAMETER		SYMBOL	RATING	UNIT
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	±25	V
Continuous Drain Current [A]	T_A=25°C	I_D	-3.6	A
	T_A=70°C		-2.9	
Pulsed Drain Current [B]		I_{DM}	-10	A
Continuous Source Current (Diode Conduction) [A]		I_S	0.4	A
Power Dissipation [A]	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 DATA				
Maximum Junction to Ambient [A]	t ≦ 5 sec	$R_{\theta JA}$	100	°C / W
	Steady-State		150	

Notes

a. Surface Mounted on 1" x 1" FR4 Board.

b. Pulse width limited by maximum junction temperature.

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

PARAMETER	SYMBO	MIN	TYP	MAX	UNIT	TEST CONDITIONS
Static						
Gate-Threshold Voltage	$V_{GS(th)}$	-0.8	-	-	V	V_{DS} = V_{GS}, I_D = -250μA
Gate-Body Leakage	I_{GSS}	-	-	±100	nA	V_{DS} = 0V, V_{GS}= ±8V
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°C
On-State Drain Current [A]	$I_{D(ON)}$	-2	-	-	A	V_{DS} = -5V, V_{GS}= -4.5V
Drain-Source On-Resistance [A]	$R_{DS(ON)}$	-	-	57	mΩ	V_{GS}= -10V, I_D = -3.6A
		-	-	89		V_{GS}= -4.5V, I_D = -2.8A
Forward Transconductance [A]	g_{FS}	-	2	-	S	V_{DS}= -5V, I_D = -3.6A
Diode Forward Voltage	V_{SD}	-	-0.7	-	V	I_S= -0.4A, V_{GS}= 0V
Dynamic [b]						
Total Gate Charge	Q_g	-	64	-	nC	I_D= -3.6A
Gate-Source Charge	Q_{gs}	-	1.9	-		V_{DS}= -10V
Gate-Drain Charge	Q_{gd}	-	2.5	-		V_{GS}= -5V
Turn-On Delay Time	$T_{d(on)}$	-	10	-	nS	I_D= -1A, V_{DS}= -15V
Rise Time	T_r	-	2.8	-		V_{GEN}= -10V
Turn-Off Delay Time	$T_{d(off)}$	-	53.6	-		R_G= 50Ω
Fall Time	T_f	-	46	-		

Notes

a. Pulse test : PW ≦ 300 us duty cycle ≦ 2%.

b. Guaranteed by design, not subject to production testing.

CHARACTERISTIC CURVE

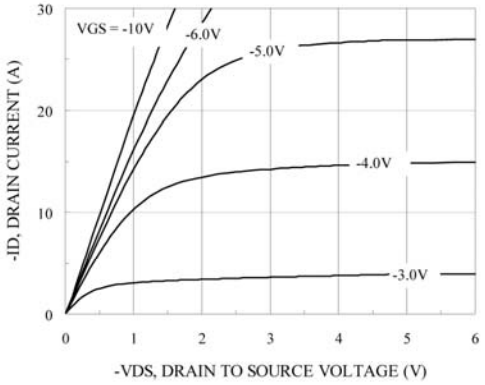


Figure 1. On-Region Characteristics

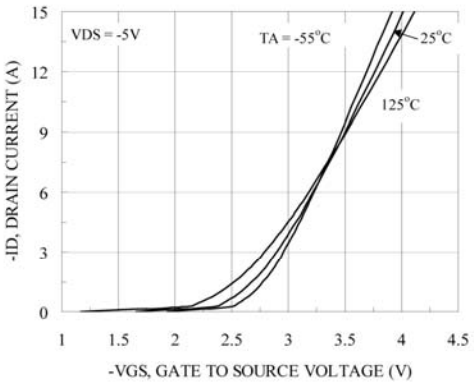


Figure 2. Body Diode Forward Voltage Variation with Source Current and Temperature

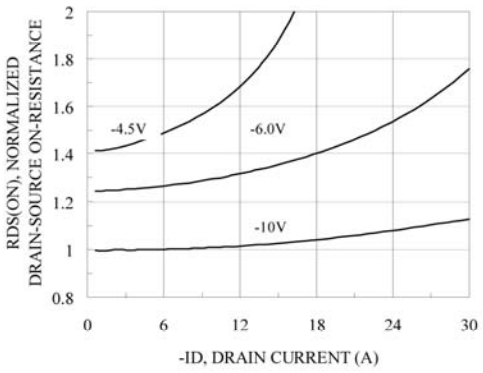


Figure 3. On Resistance Vs Vgs Voltage

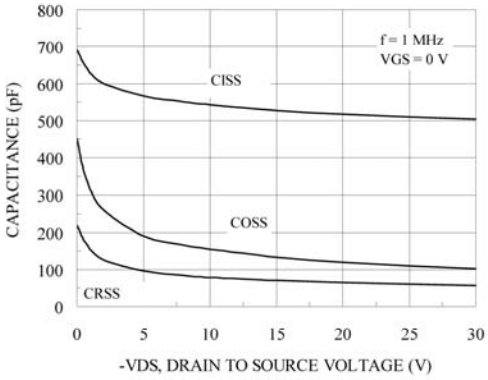


Figure 4. Capacitance Characteristics

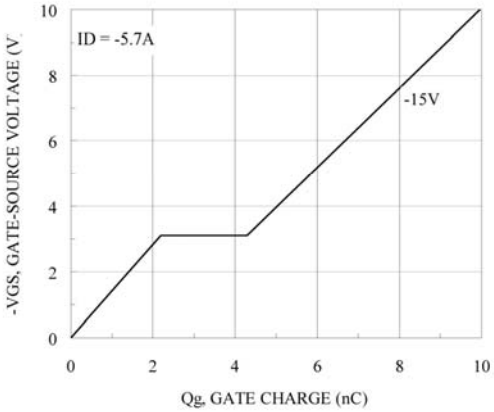


Figure 5. Gate Charge Characteristics

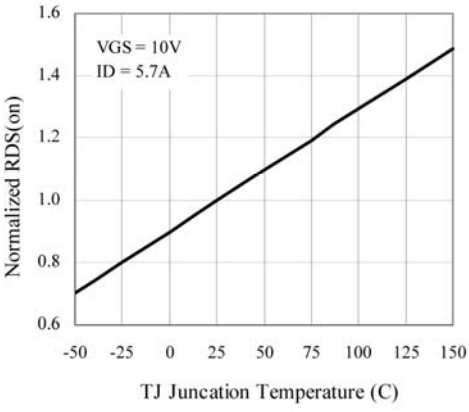


Figure 6. On-Resistance Variation with Temperature

CHARACTERISTIC CURVE

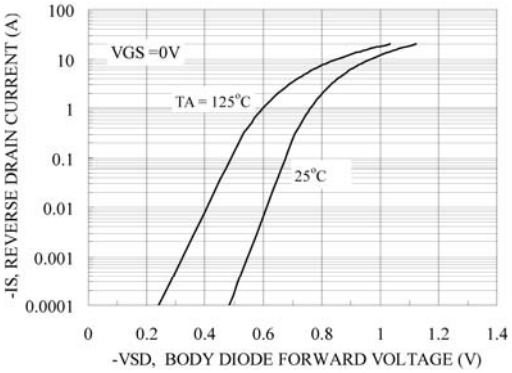


Figure 7. Transfer Characteristics

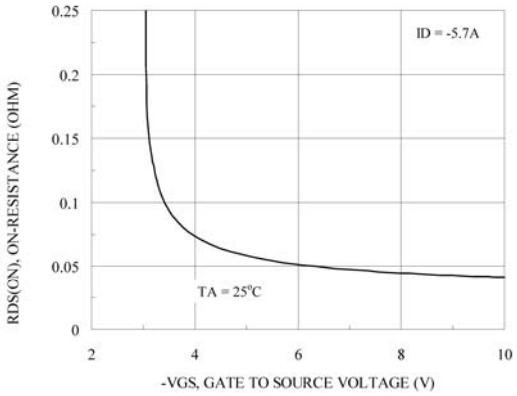


Figure 8. On-Resistance with Gate to Source Voltage

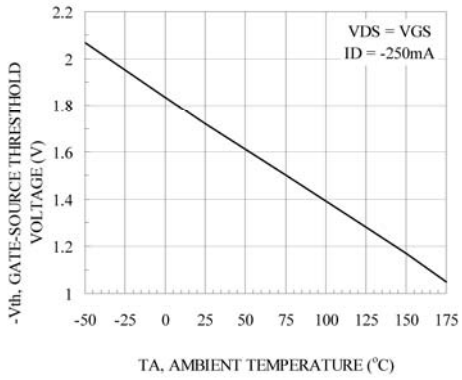


Figure 9. Vth Gate to Source Voltage Vs Temperature

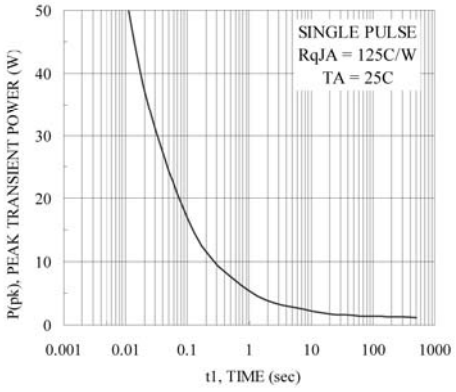


Figure 10. Single Pulse Maximum Power Dissipation

Normalized Thermal Transient Junction to Ambient

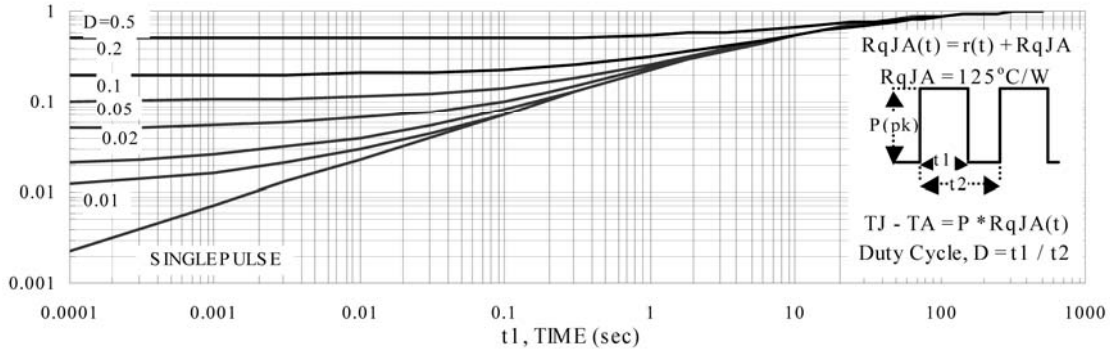


Figure 11. Transient Thermal Response Curve