

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

DESCRIPTION

The SMG2343 uses advanced trench technology to provide excellent on-resistance with low gate charge. The device is suitable for use as a load switch or in PWM applications.

FEATURES

- Lower Gate Threshold Voltage
- Small Package Outline

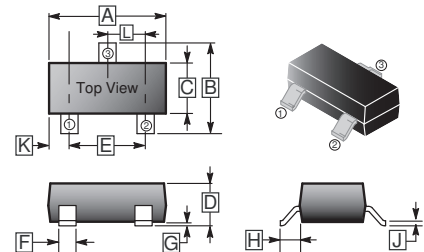
MARKING

2343

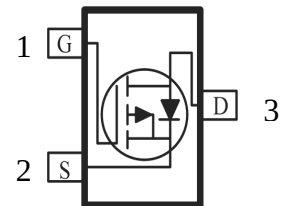
PACKAGE INFORMATION

Package	MPQ	Leader Size
SC-59	3K	7 inch

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			



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

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current ³	$T_A=25^\circ\text{C}$	I_D	-4.1	A
	$T_A=70^\circ\text{C}$		-3.5	
Pulsed Drain Current ¹		I_{DM}	-12	A
Power Dissipation	$T_A=25^\circ\text{C}$	P_D	1.38	W
Linear Derating Factor			0.01	W / $^\circ\text{C}$
Operating Junction and Storage Temperature Range		T_j, T_{stg}	-55~150	$^\circ\text{C}$
Thermal Resistance Rating				
Maximum Junction to Ambient ³		$R_{\theta JA}$	90	$^\circ\text{C} / \text{W}$

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static						
Drain-Source Breakdown Voltage	BV_{DSS}	-30	-	-	V	$V_{GS}=0$, $I_D = -250\mu\text{A}$
Gate-Threshold Voltage	$V_{GS(th)}$	-1.0	-	-2.0	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	$V_{DS} = -24\text{V}$, $V_{GS}=0$
		-	-	-5		$V_{DS} = -24\text{V}$, $V_{GS}=0$
Drain-Source On-Resistance ²	$R_{DS(ON)}$	-	-	45	m Ω	$V_{GS} = -10\text{V}$, $I_D = -4.1\text{A}$
		-	-	65		$V_{GS} = -4.5\text{V}$, $I_D = -3.0\text{A}$
Forward Transconductance	g_{fs}	-	60	-	S	$V_{DS} = -10\text{V}$, $I_D = -4\text{A}$
Dynamic						
Total Gate Charge ²	Q_g	-	15.2	-	nC	$V_{DS} = -24\text{V}$, $V_{GS} = -10\text{V}$, $I_D = -3\text{A}$
Gate-Source Charge	Q_{gs}	-	5.5	-		
Gate-Drain Charge	Q_{gd}	-	1	-		
Turn-on Delay Time ²	$T_{d(on)}$	-	8.6	-	nS	$V_{DS} = -15\text{V}$, $V_{GS} = -10\text{V}$, $R_G=6\Omega$, $R_D=15\Omega$, $I_D = -1\text{A}$
Rise Time	T_r	-	12.2	-		
Turn-off Delay Time	$T_{d(off)}$	-	36.6	-		
Fall Time	T_f	-	20.8	-		
Input Capacitance	C_{iss}	-	590	-	pF	$V_{GS}=0$, $V_{DS} = -25\text{V}$, $f=1.0\text{MHz}$
Output Capacitance	C_{oss}	-	75	-		
Reverse Transfer Capacitance	C_{rss}	-	10	-		
Diode Forward Voltage ²	V_{SD}	-	-	-1	V	$I_S = -1\text{A}$, $V_{GS}=0$, $T_J=25^\circ\text{C}$

Notes:

1. Pulse width limited by Max. junction temperature.
2. Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.
3. Surface mounted on 1 in² copper pad of FR4 board; 270°C / W when mounted on Min. copper pad.

CHARACTERISTIC CURVES

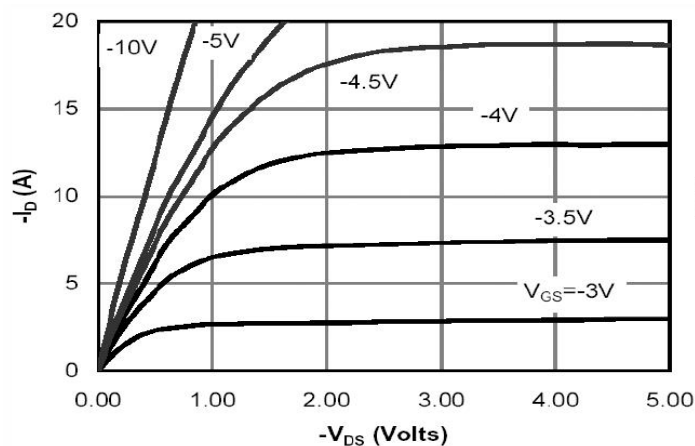


Fig 1. Typical Output Characteristics

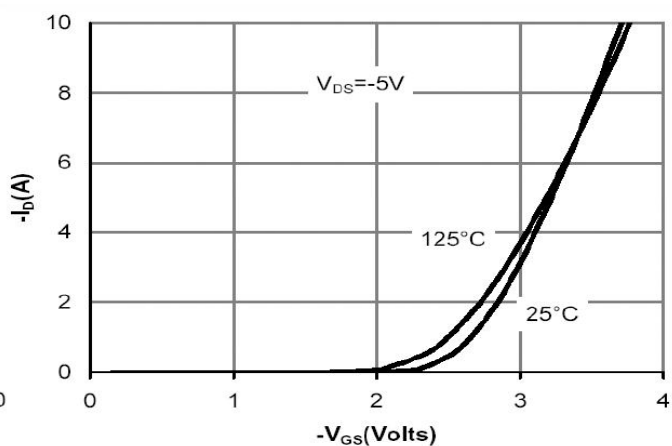


Fig 2. Transfer Characteristics

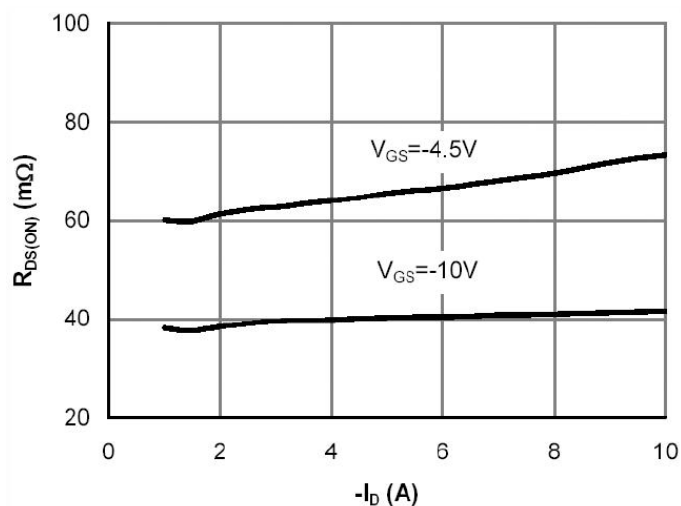


Fig 3. On-Resistance vs. Drain Current and Gate Voltage

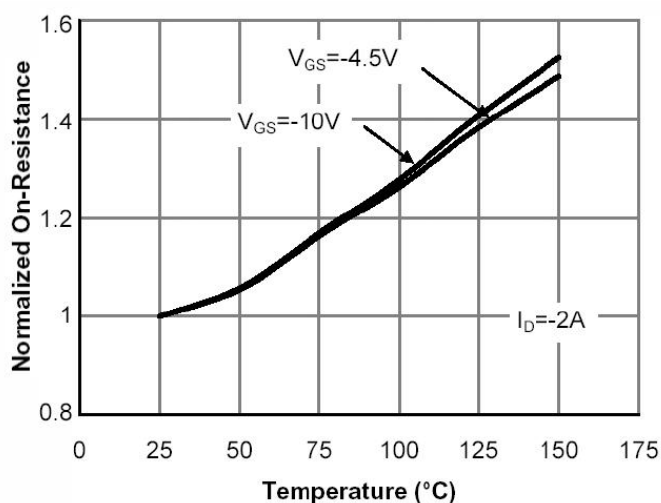


Fig 4. On-Resistance vs. Junction Temperature

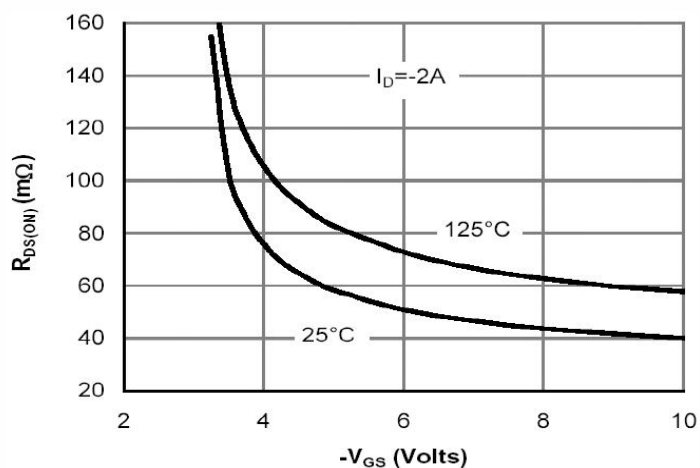


Fig 5. On-Resistance vs. Gate-Source Voltage

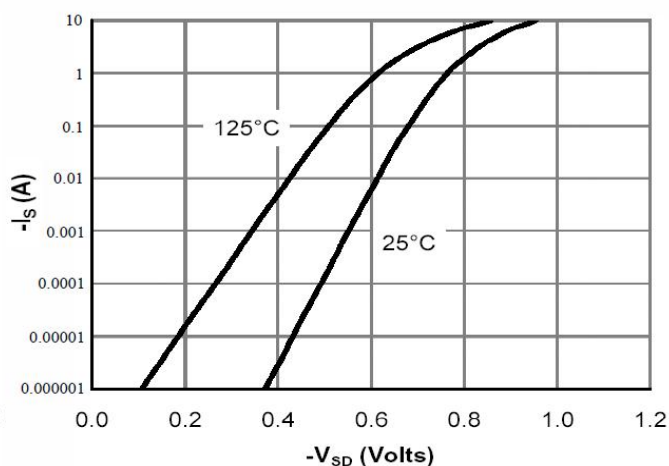


Fig 6. Body Diode Characteristics

CHARACTERISTIC CURVES

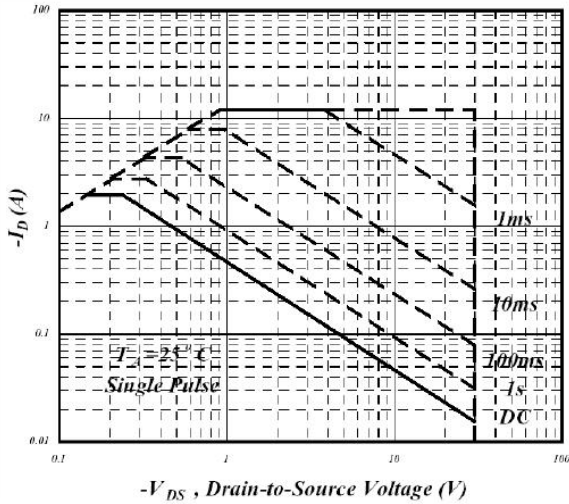


Fig 7. Maximum Safe Operating Area

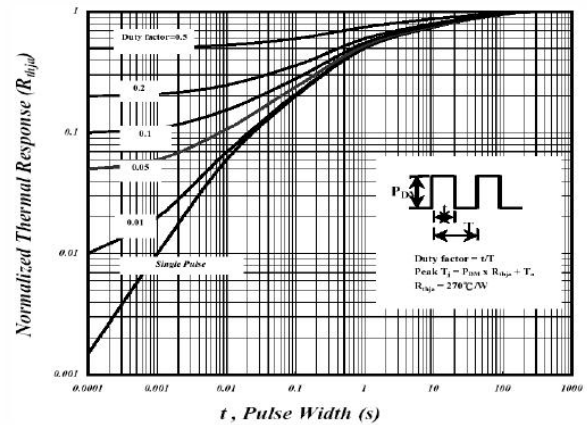


Fig 8. Normalized Maximum Transient Thermal Impedance Curve

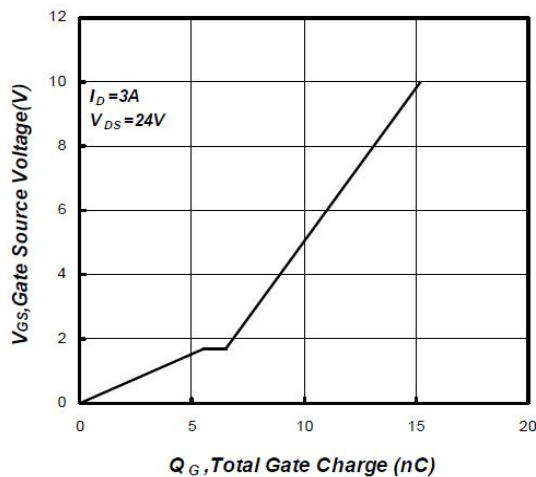


Fig 9. Gate Charge Characteristics

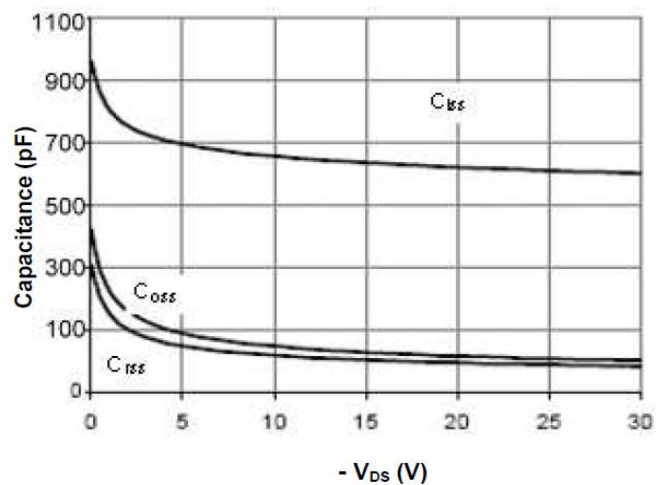


Fig 10. Typical Capacitance Characteristics