

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

## DESCRIPTION

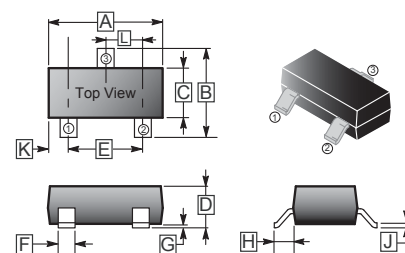
The SMG2328 utilized advanced processing techniques to achieve the lowest possible on-resistance, extremely efficient and cost-effectiveness device.

The SMG2328 is universally used for all commercial-industrial applications.

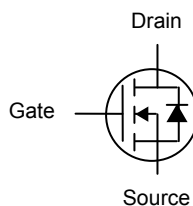
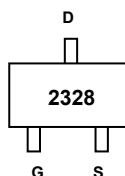
**SC-59**

## FEATURES

- Simple drive requirement
- Small package outline
- Super high density cell design for extremely low  $R_{DS(ON)}$



## DEVICE MARKING:



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			

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

PARAMETER	SYMBOL	RATING	UNIT
Drain – Source Voltage	$V_{DS}$	100	V
Gate – Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current <sup>3</sup>	$T_A=25^\circ\text{C}$	$I_D$	1.5
	$T_A=70^\circ\text{C}$	$I_D$	1.2
Pulsed Drain Current <sup>1,2</sup>	$I_{DM}$	6	A
Total Power Dissipation	$P_D$	1.38	W
Linear Derating Factor		0.01	W / °C
Operating Junction & Storage Temperature Range	$T_J, T_{STG}$	-55~150	°C
THERMAL DATA			
Thermal Resistance Junction-ambient <sup>3</sup> (Max.)	$R_{\theta JA}$	90	°C / W

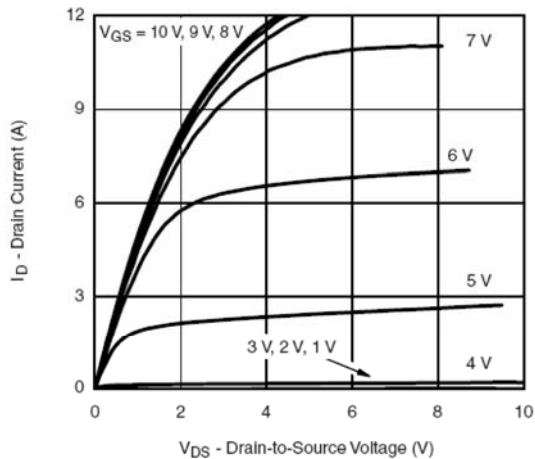
**ELECTRICAL CHARACTERISTICS** ( $T_J = 25^\circ\text{C}$  unless otherwise specified)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT	TEST CONDITION
Drain-Source Breakdown Voltage	$BV_{DSS}$	100	-	-	V	$V_{GS}=0V, I_D=250\mu A$
Gate Threshold Voltage	$V_{GS(th)}$	1	-	2.5	V	$V_{DS}=V_{GS}, I_D=250\mu A$
Forward Transconductance	$g_{fs}$	-	4	-	S	$V_{DS}=15V, I_D=1.5A$
Gate-Source Leakage Current	$I_{GSS}$	-	-	$\pm 100$	nA	$V_{GS}=\pm 20V$
Drain-Source Leakage Current( $T_J=25^\circ\text{C}$ )	$I_{DSS}$	-	-	1	$\mu A$	$V_{DS}=80V, V_{GS}=0V$
Drain-Source Leakage Current( $T_J=55^\circ\text{C}$ )		-	-	10	$\mu A$	$V_{DS}=80V, V_{GS}=0V$
Drain-Source On-State Resistance	$R_{DS(ON)}$	-	-	250	mΩ	$V_{GS}=10V, I_D=1.5A$
Total Gate Charge <sup>2</sup>	$Q_g$	-	11.1	-	nC	$V_{DS}=80V, I_D=1.5A, V_{GS}=5V$
Gate-Source Charge	$Q_{gs}$	-	4.4	-		
Gate-Drain ("Miller") Charge	$Q_{gd}$	-	3	-		
Turn-on Delay Time <sup>2</sup>	$T_{d(ON)}$	-	9	-	nS	$V_{DD}=30V, V_{GS}=10V$ $I_D=1A, R_L=30\Omega, R_G=6\Omega$
Rise Time	$T_r$	-	9.4	-		
Turn-off Delay Time	$T_{d(OFF)}$	-	26.8	-		
Fall Time	$T_f$	-	2.6	-		
Input Capacitance	$C_{ISS}$	-	975	-	pF	$V_{DS}=25V$ $V_{GS}=0V$ $f=1MHz$
Output Capacitance	$C_{OSS}$	-	38	-		
Reverse Transfer Capacitance	$C_{RSS}$	-	27	-		
<b>SOURCE-DRAIN DIODE</b>						
Forward On Voltage <sup>2</sup>	$V_{SD}$	-	-	1.2	V	$I_S=1.0A, V_{GS}=0V$

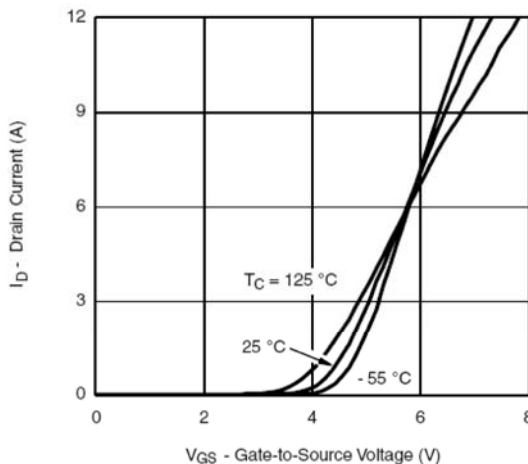
Notes :

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

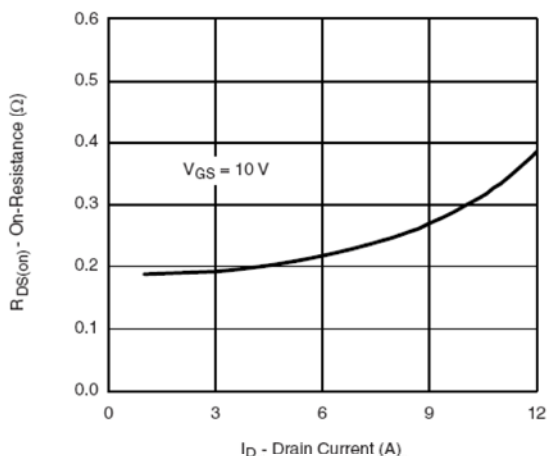
**CHARACTERISTIC CURVES**



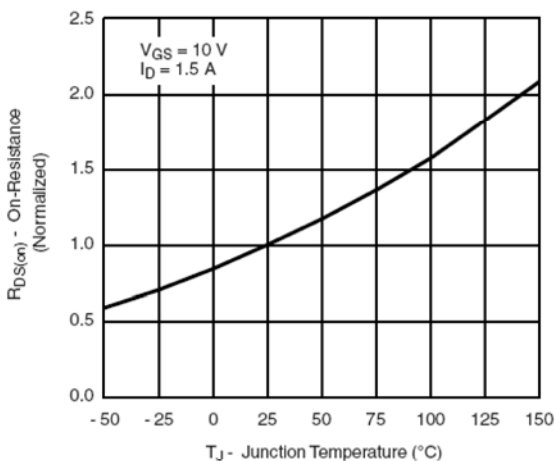
**Fig 1. Typical Output Characteristics**



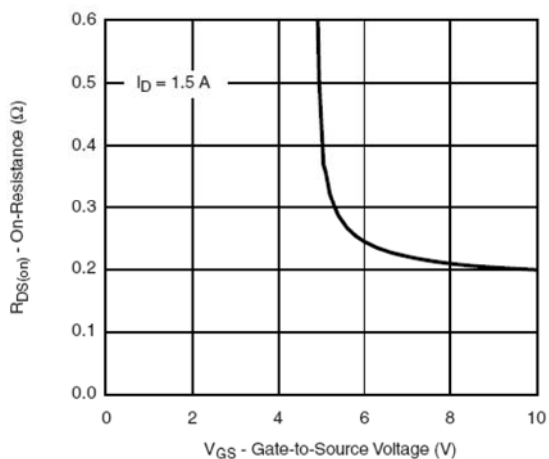
**Fig 2. Transfer Characteristics**



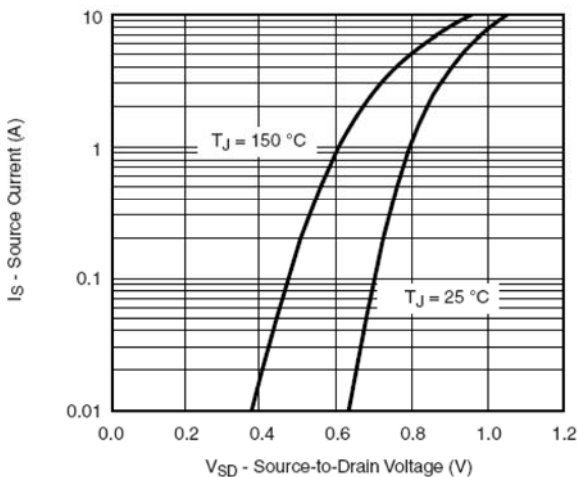
**Fig 3. On-Resistance vs. Drain Current and Gate Voltage**



**Fig 4. On-Resistance vs. Junction Temperature**

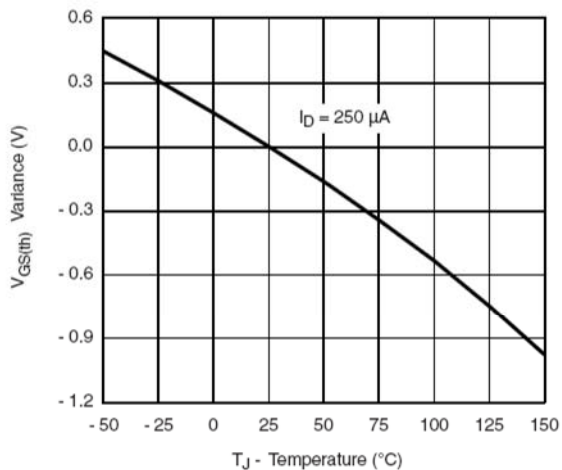


**Fig 5. On-Resistance vs. Gate-Source Voltage**

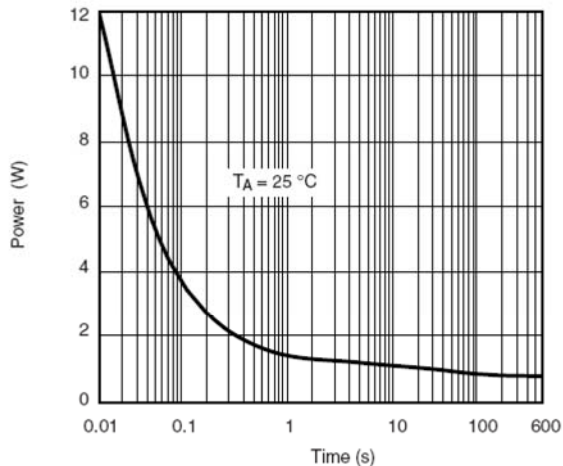


**Fig 6. Body Diode Characteristics**

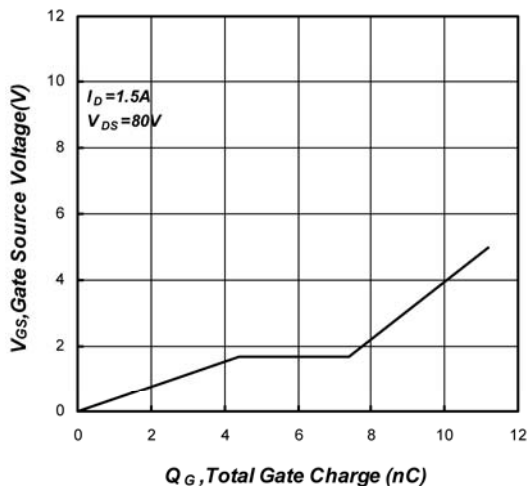
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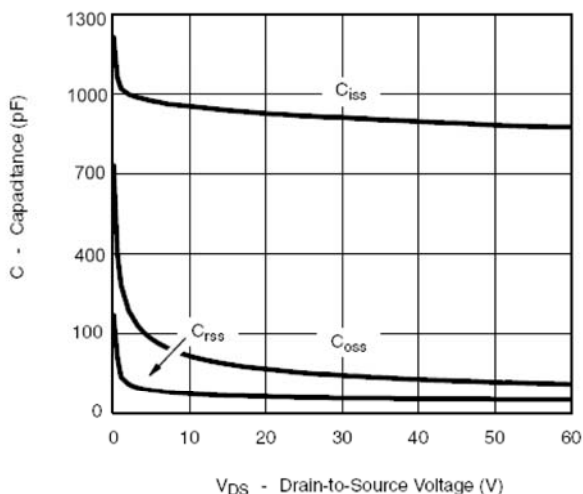
**Fig 7. Threshold Voltage vs. Junction Temperature**



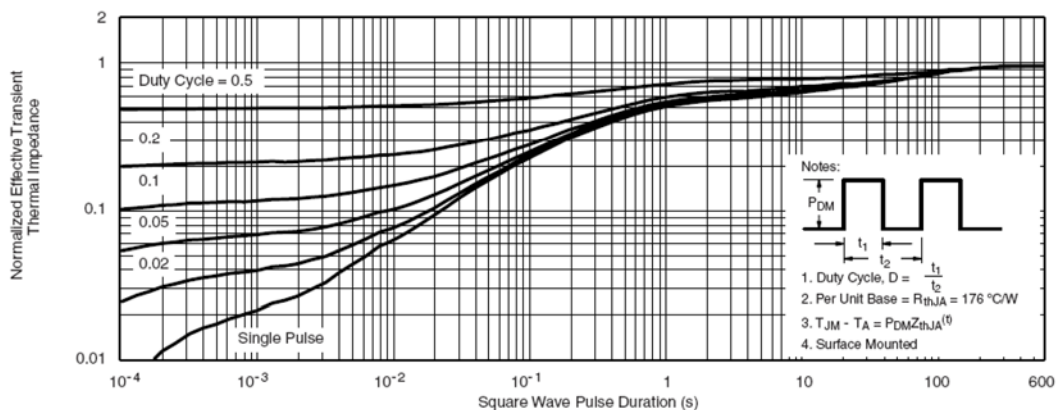
**Fig 8. Single Pulse Maximum Power Dissipation**



**Fig 9. Gate Charge Characteristics**



**Fig 10. Typical Capacitance Characteristics**



**Fig 11. Normalized Maximum Transient Thermal Impedance**