

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

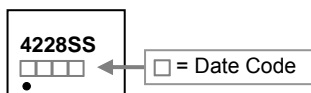
## DESCRIPTION

The SSG4228 provide the designer with the best Combination of fast switching, ruggedized device design, Ultra low on-resistance and cost-effectiveness.

## FEATURES

- Low on-resistance
- Simple Drive Requirement
- Double-N MosFET Package

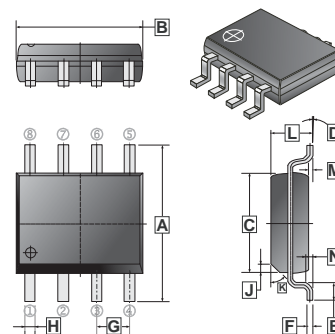
## MARKING CODE



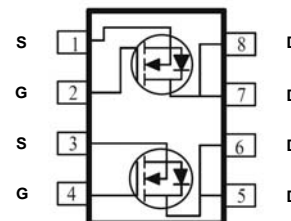
## PACKAGE INFORMATION

Package	MPQ	LeaderSize
SOP-8	3K	13' inch

## SOP-8



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	5.80	6.20	H	0.35	0.49
B	4.80	5.00	J	0.375 REF.	
C	3.80	4.00	K	45°	
D	0°	8°	L	1.35	1.75
E	0.40	0.90	M	0.10	0.25
F	0.19	0.25	N	0.25 REF.	
G	1.27 TYP.				



## ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub> = 25°C unless otherwise specified)

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V <sub>DS</sub>	30	V
Gate-Source Voltage	V <sub>GS</sub>	±20	V
Continuous Drain Current <sup>3</sup>	I <sub>D</sub>	T <sub>A</sub> = 25°C	6.8
		T <sub>A</sub> = 70°C	5.5
Pulsed Drain Current <sup>1</sup>	I <sub>DM</sub>	40	A
Power Dissipation <sup>1</sup>	P <sub>D</sub>	2	W
Maximum Junction to Ambient <sup>3</sup>	R <sub>θJA</sub>	62.5	°C / W
Linear Derating Factor		0.016	W / °C
Operating Junction & Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55~150	°C

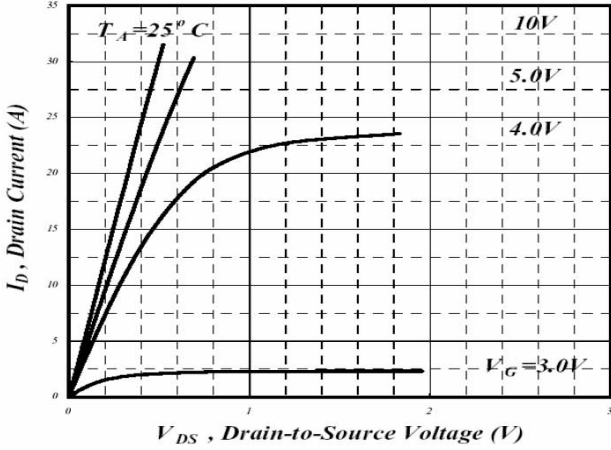
**ELECTRICAL CHARACTERISTICS** ( $T_j = 25^\circ\text{C}$  unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
<b>Static</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	30	-	-	V	$V_{GS}=0V, I_D=250\mu A$
Breakdown Voltage Temp. Coefficient	$\Delta BV_{DS}/\Delta T_j$	-	0.03	-	V / $^\circ\text{C}$	Reference to $25^\circ\text{C}$ , $I_D = 1\text{mA}$
Gate-Threshold Voltage	$V_{GS(th)}$	1	-	3	V	$V_{DS}=V_{GS}, I_D = 250\mu A$
Gate-Body Leakage	$I_{GSS}$	-	-	$\pm 100$	nA	$V_{GS}=\pm 20V$
Zero Gate Voltage Drain Current	$I_{DSS}$	-	-	1	$\mu A$	$V_{DS}=30V, V_{GS}=0$
		-	-	25	$\mu A$	$V_{DS}=24V, V_{GS}=0$
Drain-Source On-Resistance <sup>2</sup>	$R_{DS(ON)}$	-	-	26	m $\Omega$	$V_{GS}=10V, I_D = 6A$
		-	-	40		$V_{GS}=4.5V, I_D = 4A$
Total Gate Charge <sup>2</sup>	$Q_g$	-	9	15	nC	$I_D = 6.8A$ $V_{DS} = 24V$ $V_{GS} = 4.5V$
Gate-Source Charge	$Q_{gs}$	-	2	-		
Gate-Drain ("Miller") Charge	$Q_{gd}$	-	6	-		
Turn-On Delay Time <sup>2</sup>	$T_{d(on)}$	-	10	-	nS	$V_{DS} = 15V$ $I_D = 1A$ $V_{GS} = 10V$ $R_G = 3.3\Omega$ $R_D = 15\Omega$
Rise Time	$T_r$	-	9	-		
Turn-Off Delay Time	$T_{d(off)}$	-	18	-		
Fall Time	$T_f$	-	6	-		
Input Capacitance	$C_{iss}$	-	580	930	pF	$V_{GS}=0V$ $V_{DS}=25V$ $f=1.0\text{MHz}$
Output Capacitance	$C_{oss}$	-	150	-		
Reverse Transfer Capacitance	$C_{rss}$	-	108	-		
Forward Transfer Conductance	$G_{fs}$	-	15	-	S	$V_{DS}=10V, I_D=6A$
<b>Source-Drain Diode</b>						
Forward On Voltage <sup>2</sup>	$V_{DS}$	-	-	1.3	V	$I_S=1.7A, V_{GS}=0V, T_j=25^\circ\text{C}$
Reverse Recovery Time <sup>2</sup>	$T_{rr}$	-	15	-	nS	$I_S = 6.8A, V_{GS} = 0V$ $di/dt=100A/\mu s$
Reverse Recovery Charge	$Q_{rr}$	-	9	-	nC	

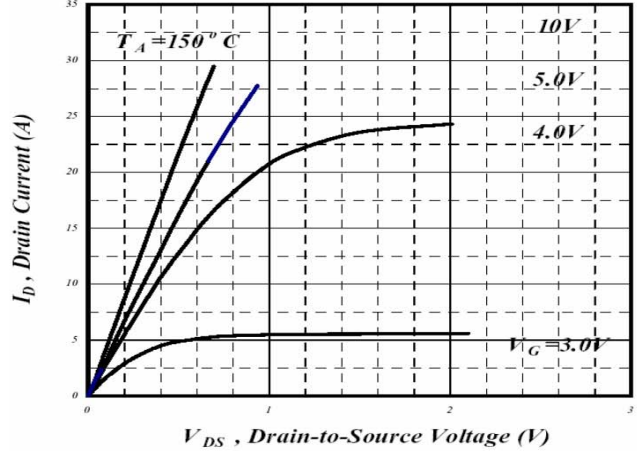
Notes:

- 1 Pulse width limited by Max. junction temperature.
- 2 Pulse width 300us, duty cycle 2%.
- 3 Surface mounted on 1 inch<sup>2</sup> copper pad of FR4 board; 135 $^\circ\text{C}/\text{W}$  when mounted on min. copper pad.

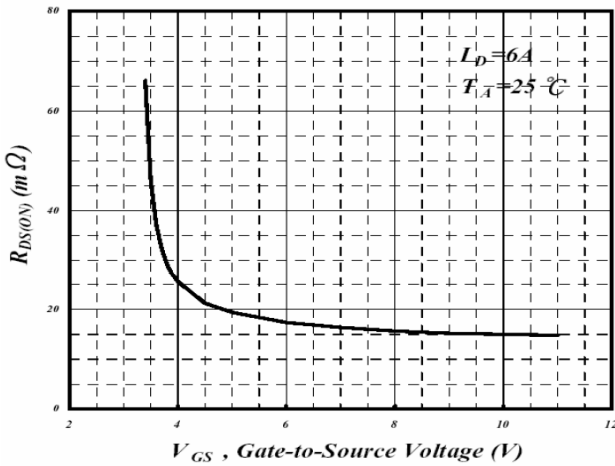
**CHARACTERISTICS CURVE**



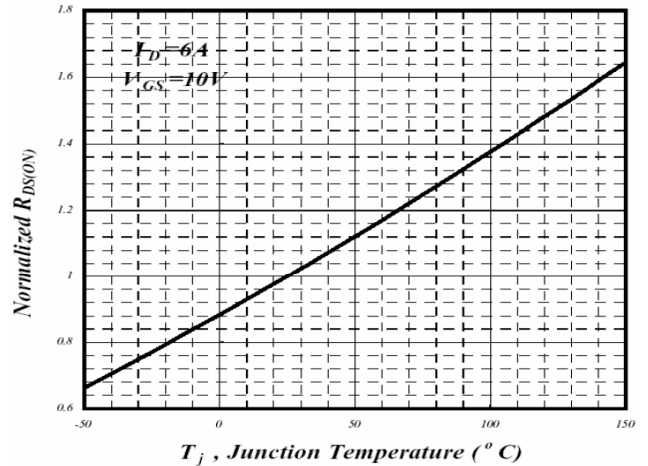
**Fig 1. Typical Output Characteristics**



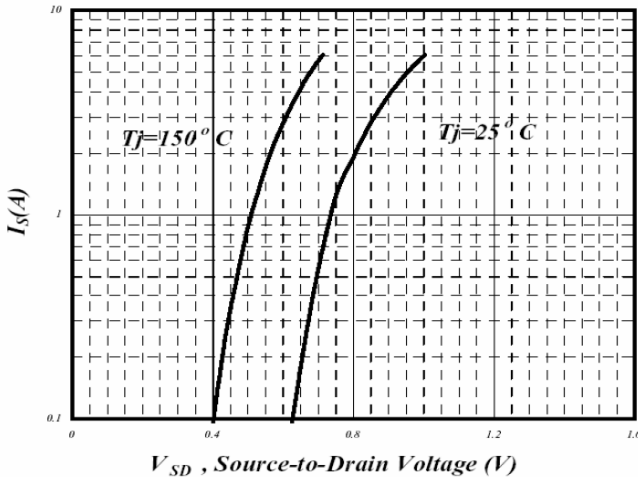
**Fig 2. Typical Output Characteristics**



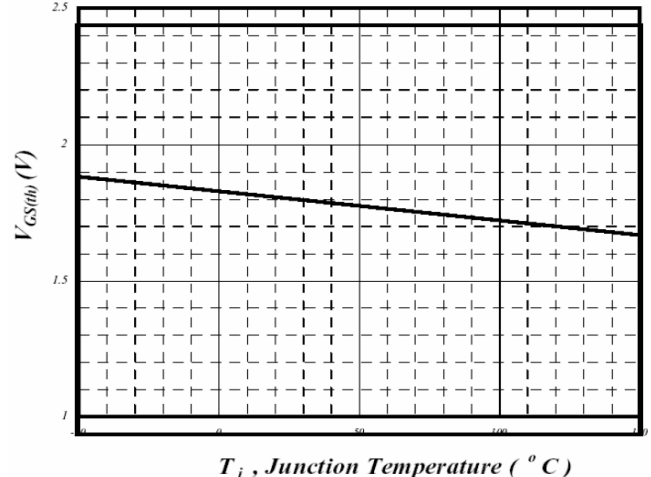
**Fig 3. On-Resistance v.s. Gate Voltage**



**Fig 4. Normalized On-Resistance v.s. Junction Temperature**

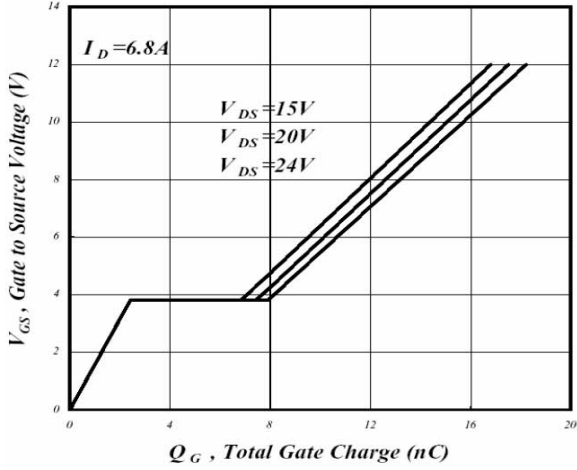


**Fig 5. Forward Characteristics of Reverse Diode**

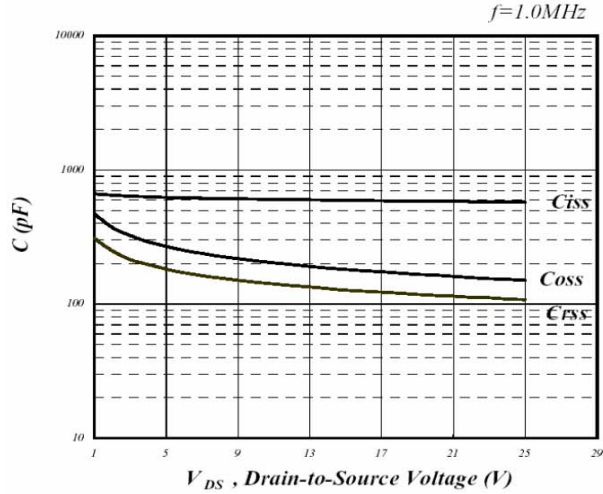


**Fig 6. Gate Threshold Voltage v.s. Junction Temperature**

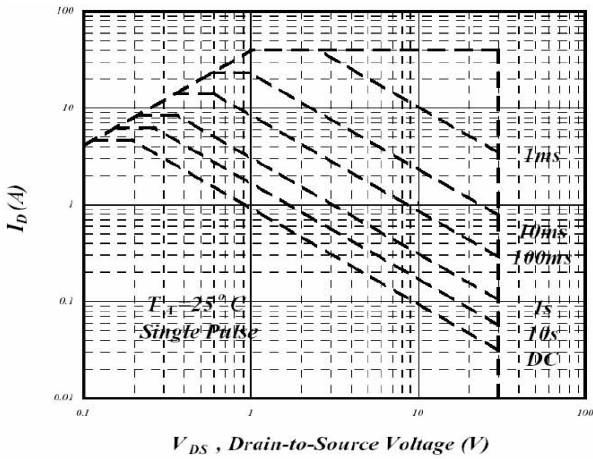
**CHARACTERISTICS CURVE**



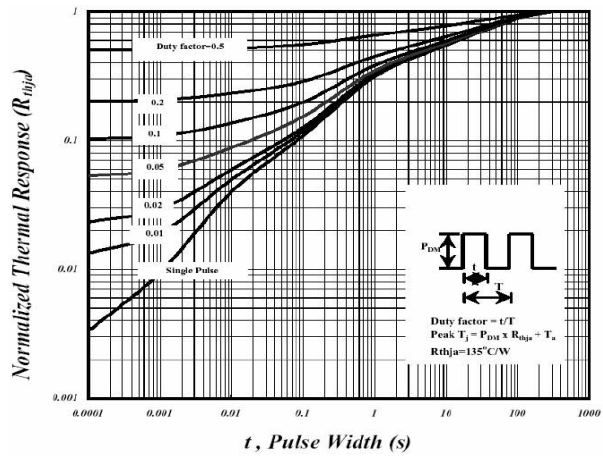
**Fig 7. Gate Charge Characteristics**



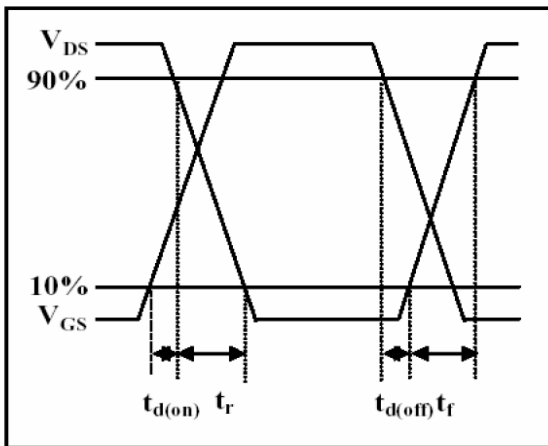
**Fig 8. Typical Capacitance Characteristics**



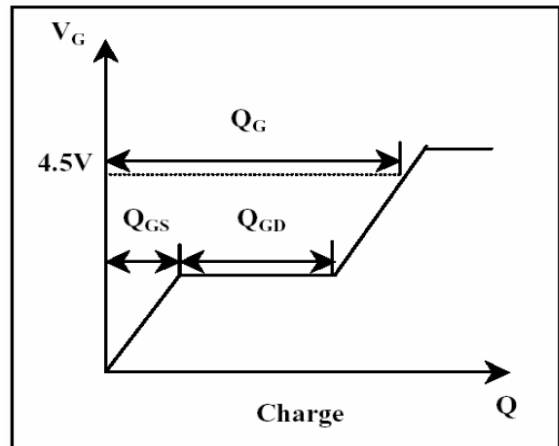
**Fig 9. Maximum Safe Operating Area**



**Fig 10. Effective Transient Thermal Impedance**



**Fig 11. Switching Time Waveform**



**Fig 12. Gate Charge Waveform**