

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

FEATURES

- 20V/ -350mA
 $R_{DS(ON)} \leq 0.9\Omega @ V_{GS} = -4.5V$
 $R_{DS(ON)} \leq 1.4\Omega @ V_{GS} = -2.5V$
 $R_{DS(ON)} \leq 2.7\Omega @ V_{GS} = -1.8V$
- Reliable and Rugged
- Green Device Available
- ESD Protection

APPLICATION

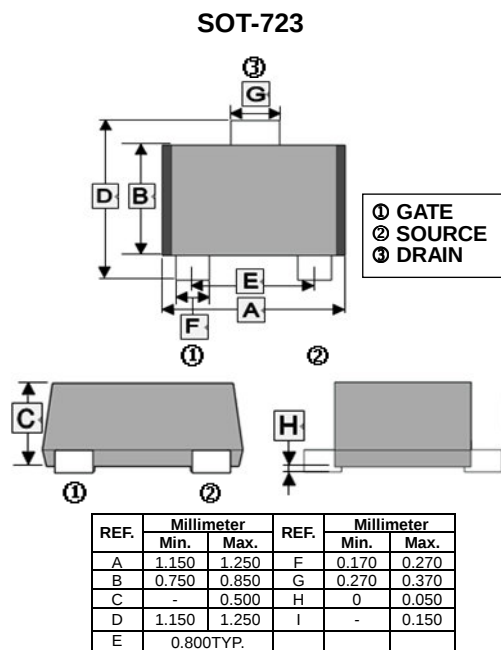
- Interfacing
- Switching

MARKING

KD

PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-723	8K	7 inch

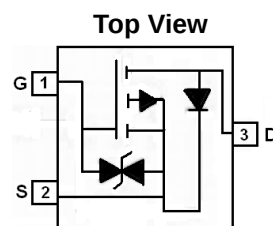


ORDER INFORMATION

Part Number	Type
SSN3139K-C	Lead (Pb)-free and Halogen-free

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

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current @ $V_{GS} = -4.5V$ ¹	I_D	$T_A=25^\circ\text{C}$ -0.35	A
		$T_A=85^\circ\text{C}$ -0.25	
Pulsed Drain Current ²	I_{DM}	-1.4	A
Total Power Dissipation	P_D	150	mW
Operating Junction & Storage Temperature Range	T_J, T_{STG}	150, -55~150	$^\circ\text{C}$
Thermal Resistance Ratings			
Thermal Resistance Junction-ambient ¹	$R_{\theta JA}$	833	$^\circ\text{C/W}$



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

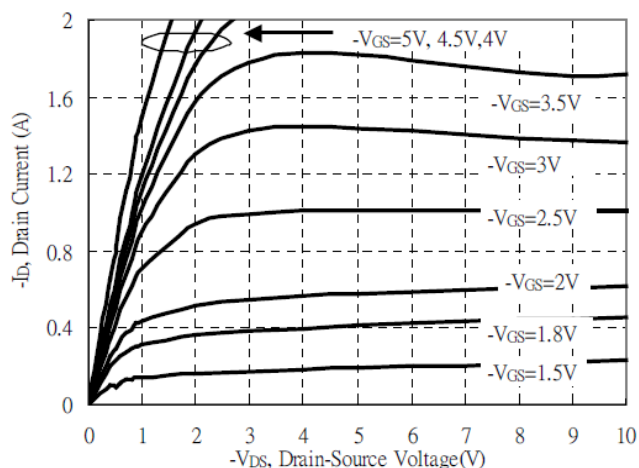
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	-20	-	-	V	$V_{GS}=0V$, $I_D= -250\mu A$
Zero Gate Voltage Drain Current	I_{DSS}	-	-	-1	μA	$V_{DS}= -20V$, $V_{GS}=0$, $T_J=25^{\circ}C$
		-	-	-10	μA	$V_{DS}= -20V$, $V_{GS}=0$, $T_J=55^{\circ}C$
Gate-Body Leakage Current	I_{GSS}	-	-	± 10	μA	$V_{DS}=0V$, $V_{GS}=\pm 12V$
Gate Threshold Voltage	$V_{GS(th)}$	-0.5	-	-1.5	V	$V_{DS}=V_{GS}$, $I_D= -250\mu A$
Drain-Source On-Resistance ³	$R_{DS(ON)}$	-	-	0.9	Ω	$V_{GS}= -4.5V$, $I_D= -350mA$
		-	-	1.4		$V_{GS}= -2.5V$, $I_D= -300mA$
		-	-	2.7		$V_{GS}= -1.8V$, $I_D= -150mA$
Total Gate Charge	Q_g	-	1.5	-	nC	$I_{DS}= -250mA$, $V_{DS}= -10V$, $V_{GS}= -4.5V$
Gate-Source Charge	Q_{gs}	-	0.28	-		
Gate-Drain ("Miller") Charge	Q_{gd}	-	0.44	-		
Turn-On Delay Time	$T_{d(on)}$	-	5	-	nS	$V_{DD}= -10V$, $I_{DS}= -200mA$, $V_{GS}= -4.5V$, $R_{GEN}=10\Omega$
Rise Time	T_r	-	6	-		
Turn-Off Delay Time	$T_{d(off)}$	-	42	-		
Fall Time	T_f	-	14	-		
Input Capacitance	C_{iss}	-	59	-	pF	$V_{DS}= -10V$, $V_{GS}=0V$, $f=1MHz$
Output Capacitance	C_{oss}	-	21	-		
Reverse Transfer Capacitance	C_{rss}	-	15	-		
Source-Drain Diode						
Continuous Source Current ¹	I_S			-0.35	A	
Pulsed Source Current ²	I_{SM}			-1.4	A	
Diode Forward Voltage ³	V_{SD}	-	-	-1.2	V	$I_S= -150mA$, $V_{GS}=0V$

Notes:

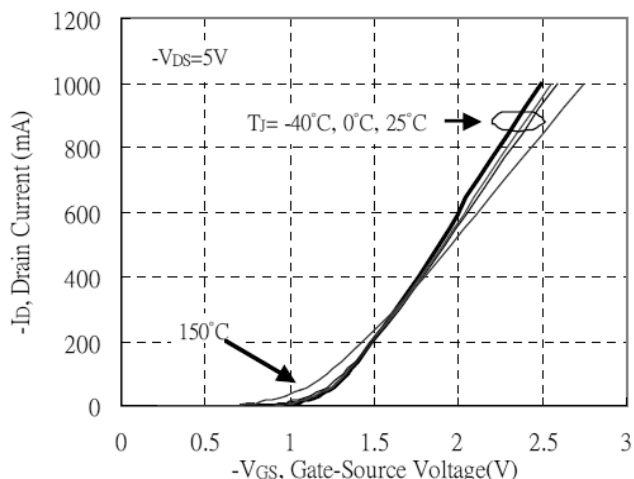
1. Surface mounted on FR4 Board using the minimum recommended pad size
2. Pulse width limited by maximum junction temperature., $P_w \leq 10\mu s$, Duty cycle $\leq 2\%$
3. The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$

CHARACTERISTICS CURVES

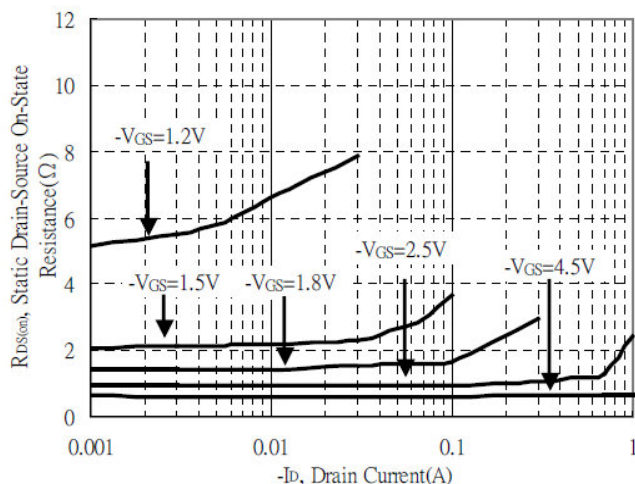
Typical Output Characteristics



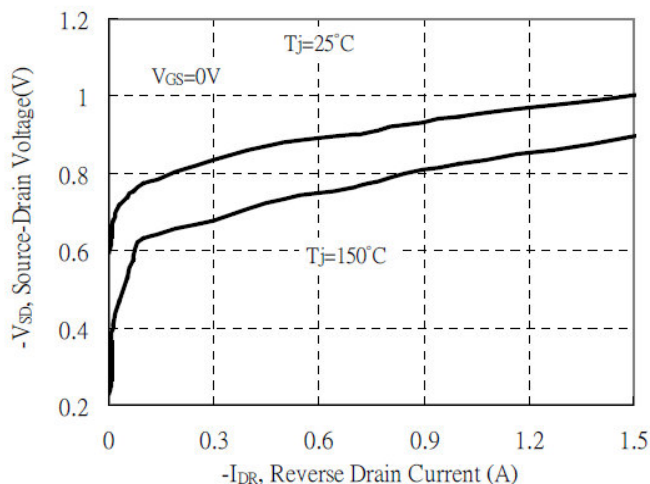
Typical Transfer Characteristics



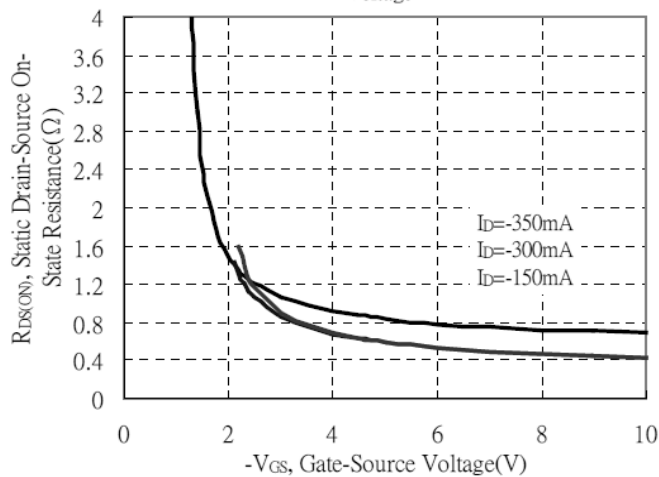
Static Drain-Source On-State resistance vs Drain Current



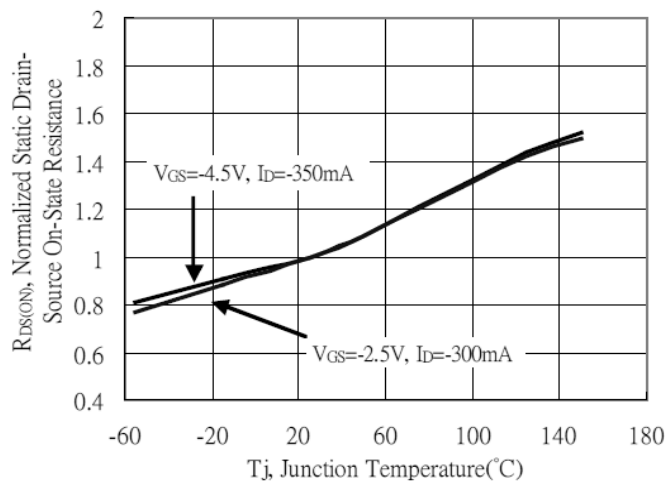
Reverse Drain Current vs Source-Drain Voltage



Static Drain-Source On-State Resistance vs Gate-Source Voltage

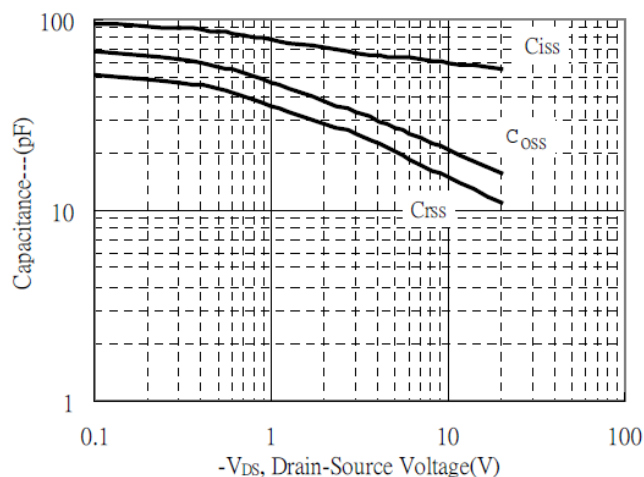


Drain-Source On-State Resistance vs Junction Temperature

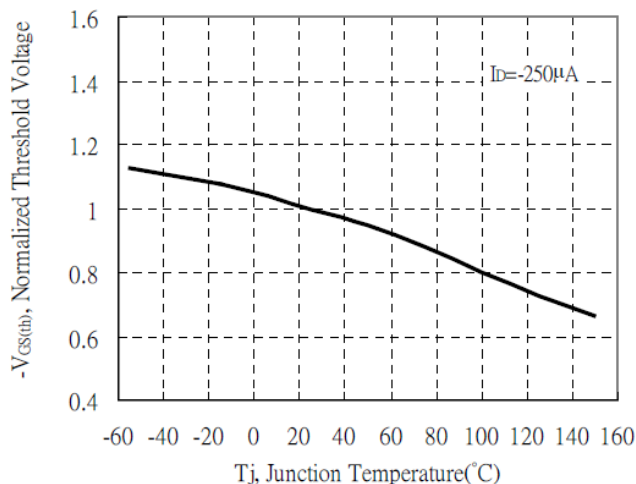


CHARACTERISTICS CURVES

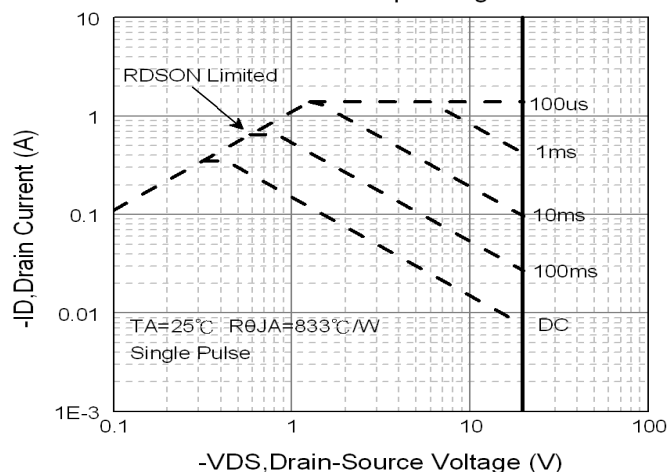
Capacitance vs Drain-to-Source Voltage



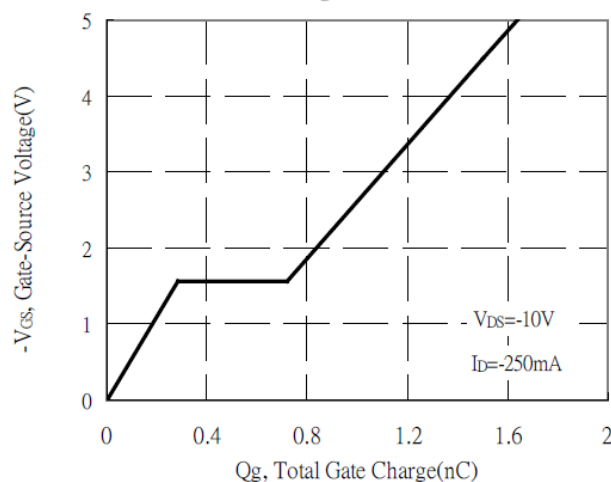
Threshold Voltage vs Junction Temperature



Maximum Safe Operating Area



Gate Charge Characteristics



Transient Thermal Response Curves

