Elektronische Bauelemente

S2N7002W

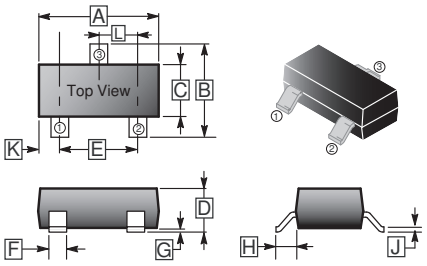
0.115A, 60V, $R_{DS(ON)}$ 7.5 Ω
N-Ch Small Signal MOSFET

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

FEATURES

- Halogen free products available
- ESD protected: 1kV

SOT-323



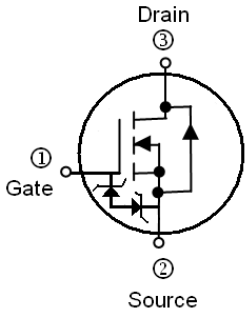
REF.	Millimeter Min.	Millimeter Max.	REF.	Millimeter Min.	Millimeter Max.
A	1.80	2.20	G	0.1 REF.	
B	1.80	2.55	H	0.525 REF.	
C	1.1	1.4	J	0.05	0.25
D	0.80	1.15	K	0.8 TYP.	
E	1.20	2.00	L	0.65 TYP.	
F	0.15	0.50			

MARKING

6C

PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-323	3K	7 inch



ABSOLUTE MAXIMUM RATINGS (T_A=25℃ unless otherwise specified)

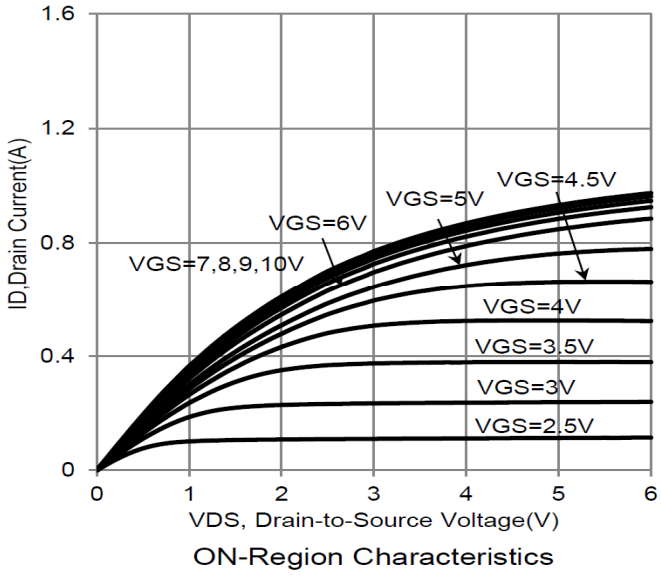
Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	60	V
Drain-Gate Voltage@ RGS=1mΩ		V_{GR}	60	V
Continuous Drain Current	T_C=25℃	I_D	±0.115	A
	T_C=100℃		±0.075	
Pulsed Drain Current [1]		I_{DM}	±0.8	A
Continuous Gate-Source Voltage		V_{GS}	±20	V
Non-Repetitive Gate-Source Voltage@ tp≦50μs		V_{GSM}	±40	V
Total Device Power Dissipation [2]	FR-5 board, T_A=25℃	P_D	225	mW
	Derate above 25℃		1.8	mW /℃
Thermal Resistance from Junction to Ambient [2]		$R_{\theta JA}$	556	℃ / W
Operating Junction and Storage Temperature		T_J, T_{STG}	-55~150	℃

ELECTRICAL CHARACTERISTICS (T_A=25℃ unless otherwise specified)

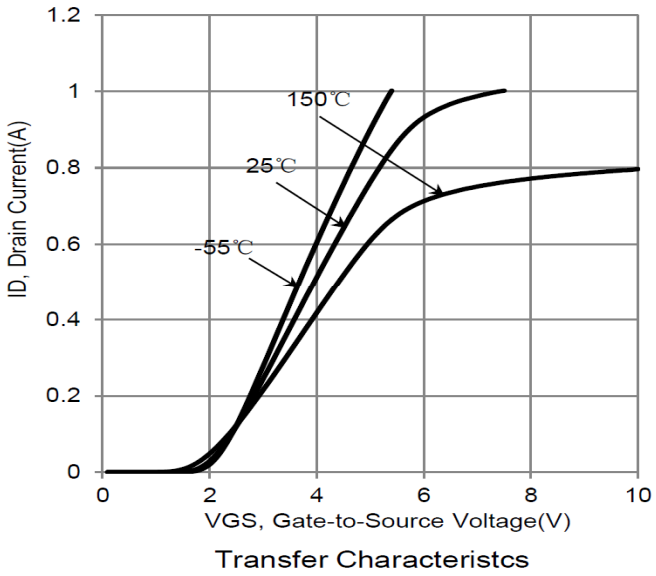
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	60	-	-	V	V_{GS}=0, I_D=10μA
Gate-Source Leakage Current	I_{GSS}	-	-	±1	μA	V_{DS}=0, V_{GS}= ±20V
Drain-Source Leakage Current	I_{DSS}	-	-	1	μA	V_{DS}=60V, V_{GS}=0, T_J=25℃
		-	-	500		V_{DS}=60V, V_{GS}=0, T_J=125℃
On Characteristics [1]						
Gate-Threshold Voltage	$V_{GS(th)}$	1	1.6	2.5	V	V_{DS}=V_{GS}, I_D=250μA
On-State Drain Current	$I_{D(ON)}$	500	-	-	mA	V_{DS}≧2$V_{DS(ON)}$, V_{GS}=10V
Static Drain-Source On-State Voltage	$V_{DS(ON)}$	-	-	3.75	V	V_{GS}=10V, I_D=500mA
		-	-	0.375		V_{GS}=5V, I_D=50mA
Forward Transconductance	g_{fs}	80	-	-	mS	V_{DS}=2$V_{DS(ON)}$, I_D=0.2A
Static Drain-Source On-Resistance	$R_{DS(ON)}$	-	1.4	7.5	Ω	V_{GS}=10V, I_D=500mA, T_C=25℃
		-	-	13.5		V_{GS}=10V, I_D=500mA, T_C=125℃
		-	1.8	7.5		V_{GS}=5V, I_D=50mA, T_C=25℃
		-	-	13.5		V_{GS}=5V, I_D=50mA, T_C=125℃
Dynamic Characteristics						
Input Capacitance	C_{iss}	-	17	-	pF	V_{DS}=25V V_{GS}=0 f=1MHz
Output Capacitance	C_{oss}	-	10	-		
Reverse Transfer Capacitance	C_{rss}	-	2.5	-		
Switching Characteristics						
Turn-on Delay Time	$T_{d(on)}$	-	7	-	nS	V_{DD}=25V, V_{GEN}=10V, R_G=25Ω, R_L=50Ω, I_D=0.5A
Turn-off Delay Time	$T_{d(off)}$	-	11	-		
Drain-Source Diode Characteristics						
Diode Forward Voltage	V_{SD}	-	1.5	-	V	I_S=0.115A, V_{GS}=0
Continuous Drain Current (Body Diode)	I_S	-	115	-	mA	
Pulsed Drain Current	I_{SM}	-	800	-	mA	

Notes:
1. Pulse Test: Pulse width≦300μs, duty cycle≦2%.
2. FR-5 board is 1 × 0.75 × 0.062 inch.

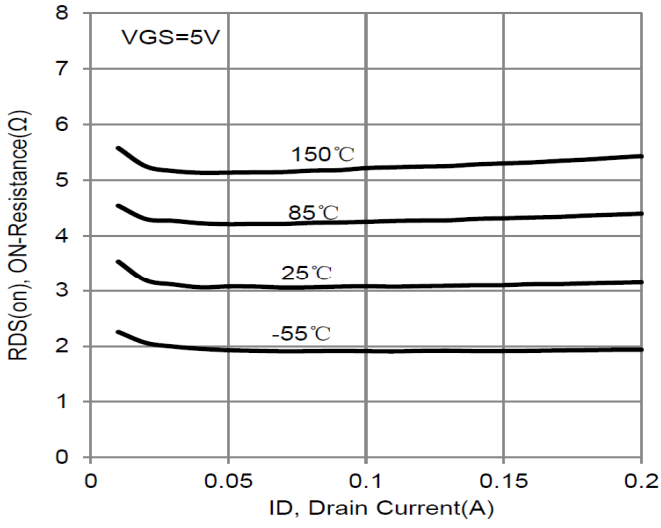
CHARACTERISTIC CURVE



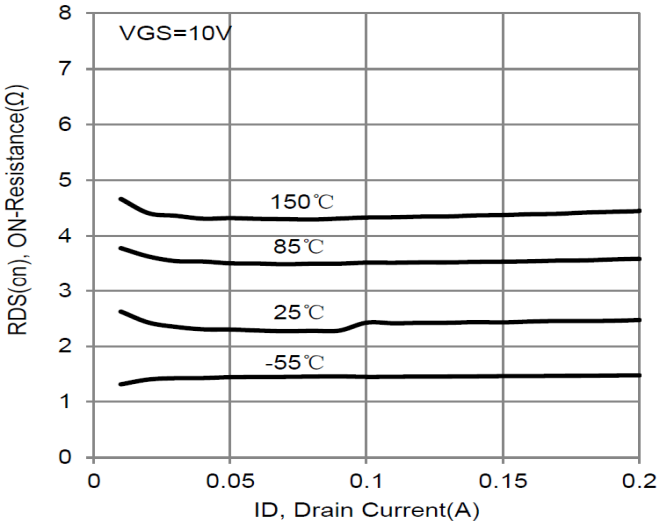
ON-Region Characteristics



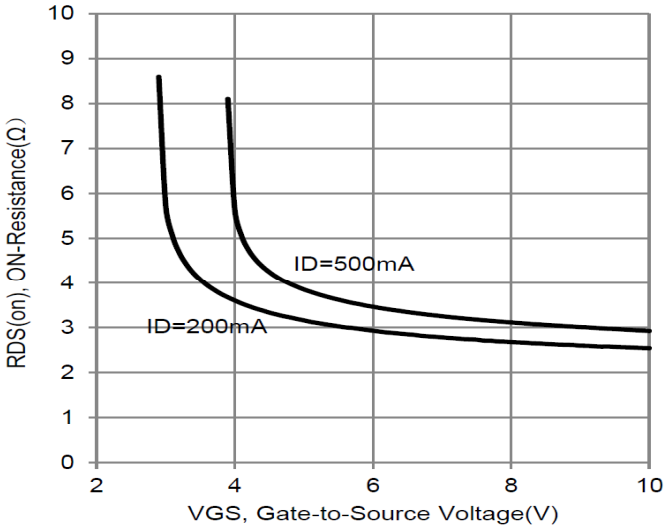
Transfer Characteristcs



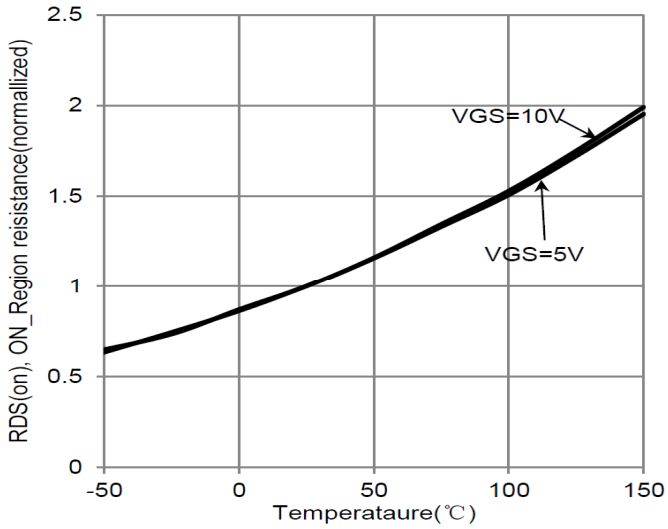
RDS(on) vs. ID



RDS(on) vs. ID

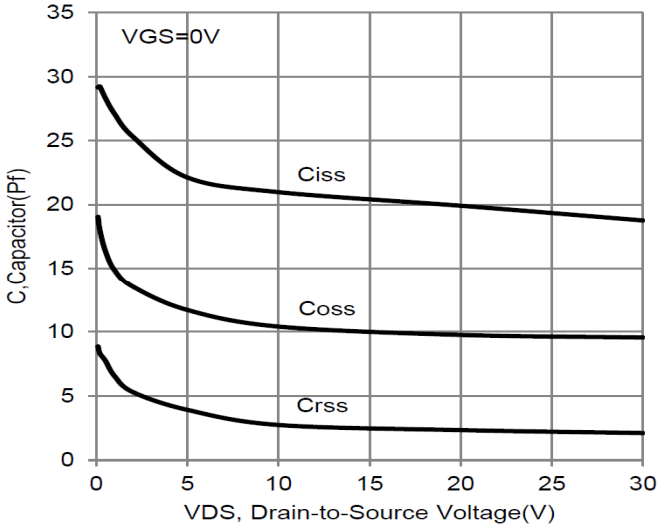


RDS(on) vs. VGS

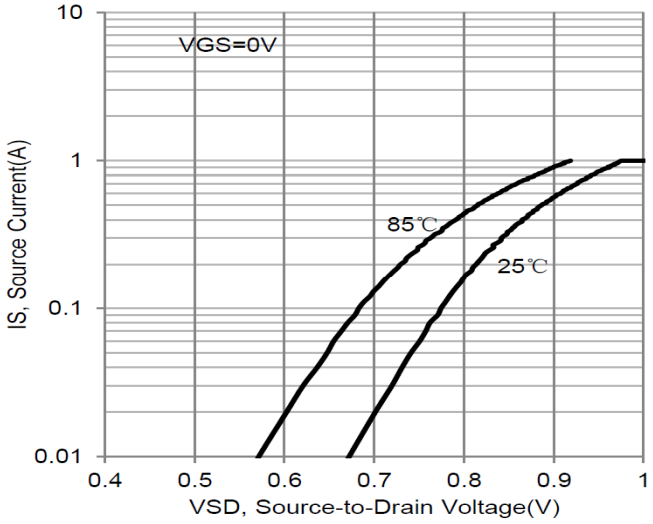


RDS(on) vs. Temperature

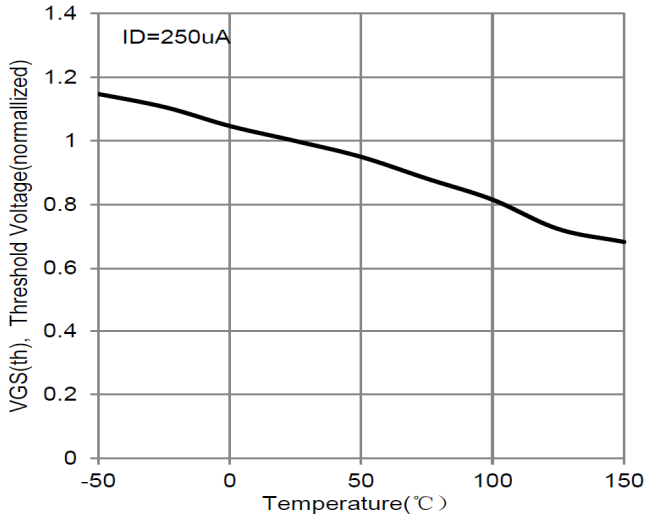
CHARACTERISTIC CURVE



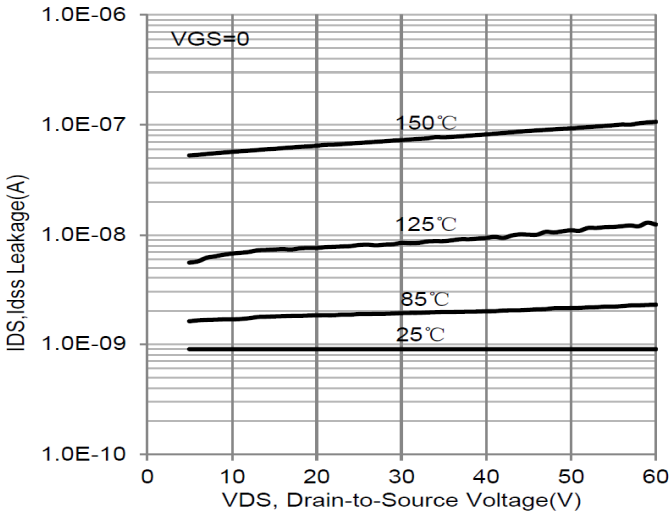
Capacitor vs.VDS



IS vs.VSD



VGS(th) vs. Temperature



IDS vs. VDS