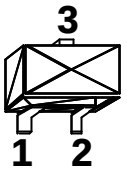
N-CHANNEL TRANSISTOR

SR2N7002
SOT-23

SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_{DSS}
60V	7.5Ω	0.2A

3-Lead Plastic SOT-23
Package Code: N
Pin 1: Gate
Pin 2: Source
Pin 3: Drain



Description

N-channel enhancement-mode MOS transistor.

Absolute Maximum Ratings

Drain-Source Voltage ..... 60 V
Drain-Gate Voltage (R_{GS}=1MO) ..... 60 V
Gate-Source Voltage ..... ±20 V
Continuous Drain Current (T_A=25°C)(1) ..... 200 mA
Continuous Drain Current (T_A=100°C)(1) ..... 115 mA
Pulsed Drain Current (T_A=25°C)(2) ..... 800 mA
Total Power Dissipation (T_C=25°C)..... 200 mW
Derate above 25°C ..... 0.16 mW / °C
Storage Temperature..... -55 to 150 °C
Operating Junction Temperature ..... -55 to 150 °C
Lead Temperature, for 10 second Soldering ..... 260 °C

Thermal Characteristics

Thermal Resistance, Junction-to-Ambient..... 625 °C / W

Electrical Characteristics (T_A = 25 °C)

Parameter	Symbol	Test Conditions	Min	Typ.	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0, I_D=10uA	60	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=2.5V, I_D=0.25mA	1	-	2.5	V
Gate Source Leakage Current, Forward	$I_{GSS/F}$	V_{GS}=+20V, V_{DS}=0	-	-	100	nA
Gate Source leakage Current, Reverse	$I_{GSS/R}$	V_{GS}=-20V, V_{DS}=0	-	-	-100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V, V_{GS}=0	-	-	1	uA
On-State Drain Current	$I_{D(ON)}$	V_{DS}>2$V_{DS(ON)}$, V_{GS}=10V	500	-	-	mA
Static Drain-Source On-State Voltage	$V_{DS(ON)}$	I_D=50mA, V_{GS}=5V	-	-	0.375	V
		I_D=500mA, V_{GS}=10V	-	-	3.75	V
Static Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=4.5V, I_D=75mA	-	3.3	5.3	Ω
		V_{GS}=5V, I_D=50mA	-	2.8	5	Ω
		V_{GS}=10V, I_D=500mA	-	2.3	5	Ω
Forward Transconductance	G_{FS}	V_{DS}>2$V_{DS(ON)}$, I_D=200mA	80	-	-	mS
Turn-on Delay Time	$t_{d(on)}$	(V_{DD}=50V, R_D=250Ω, V_{GS}=10V, R_G=50Ω)	-	20	-	nS
Turn-off Delay Time	$t_{d(off)}$		-	40	-	nS
Input Capacitance	C_{iss}	V_{DS}=25V, V_{GS}=0, f=1MHz	-	-	50	pF
Output Capacitance	C_{oss}		-	-	25	pF
Reverse Transfer Capacitance	C_{rss}		-	-	5	pF

(1) The Power Dissipation of the package may result in a continuous drain current.
(2) Pulse Test: Pulse Width≦ 300us, Duty Cycle≦ 2%

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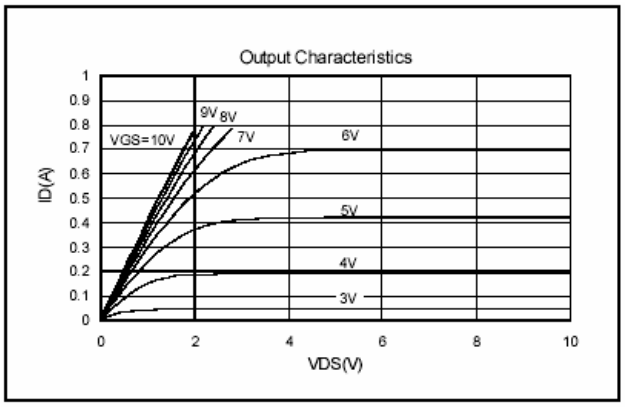
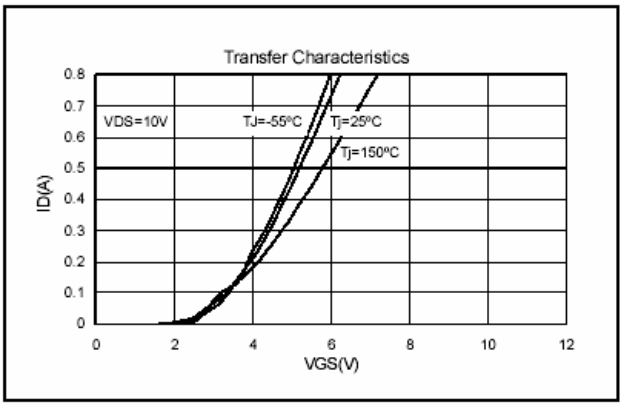
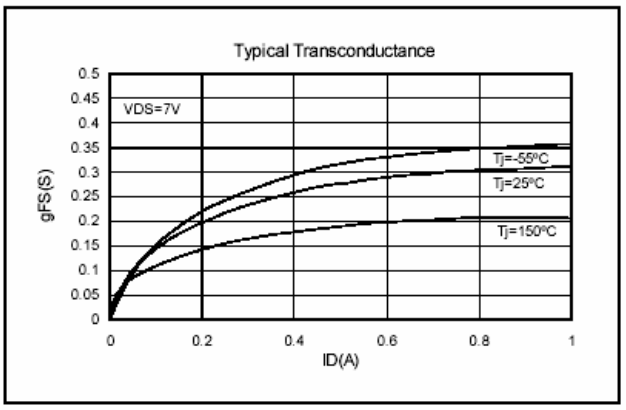
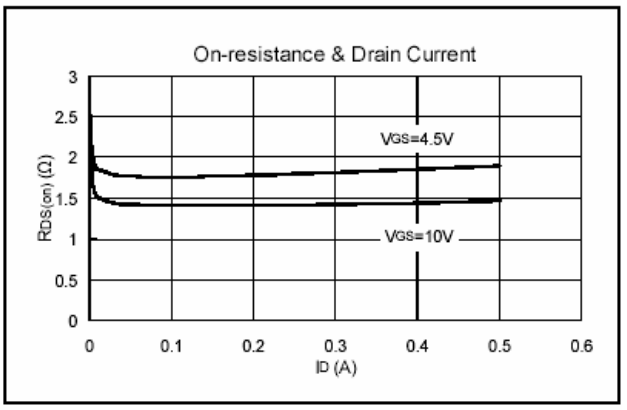
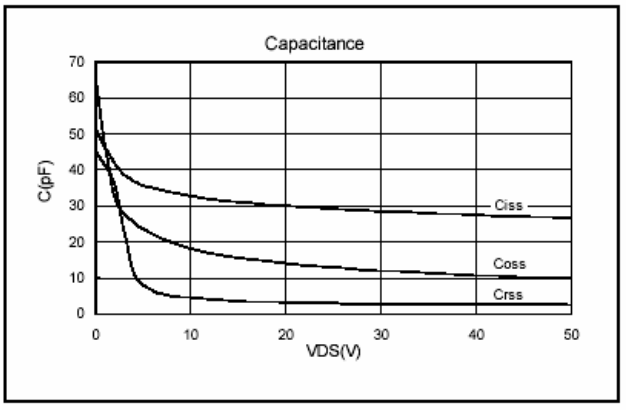
Characteristics Curve

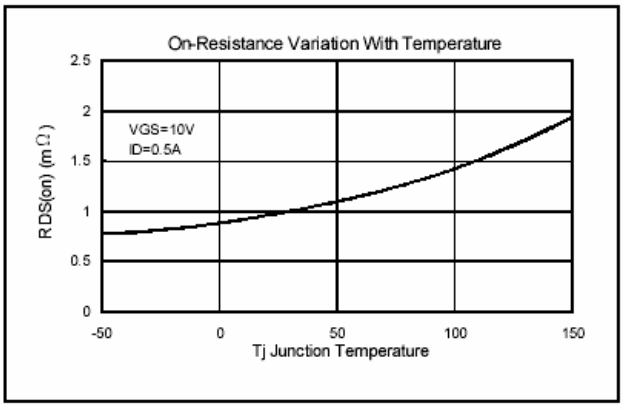


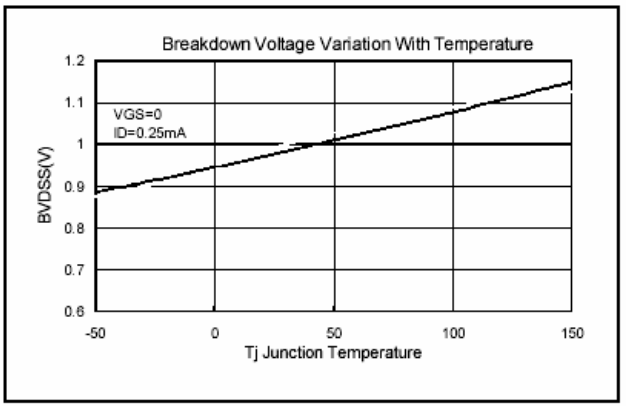


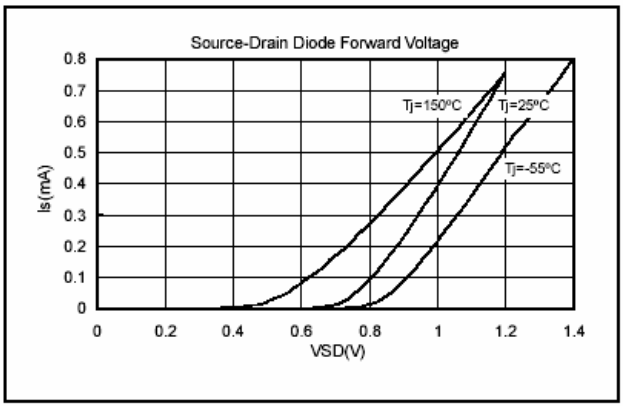












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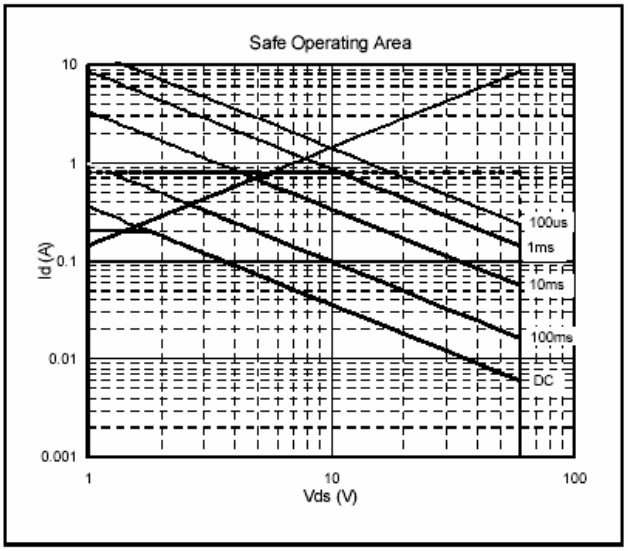
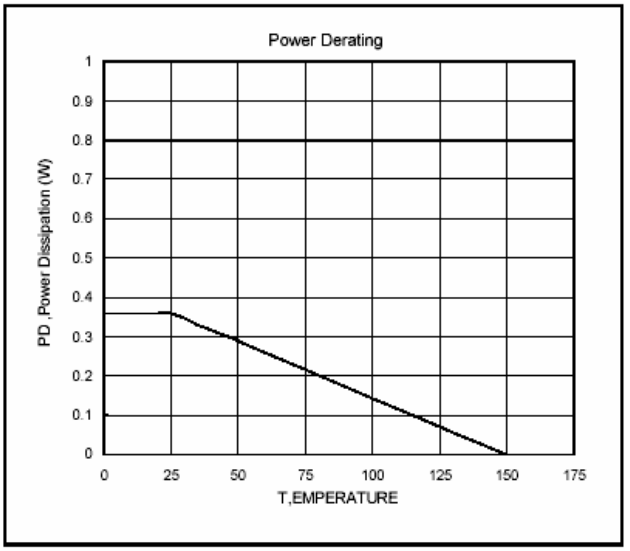
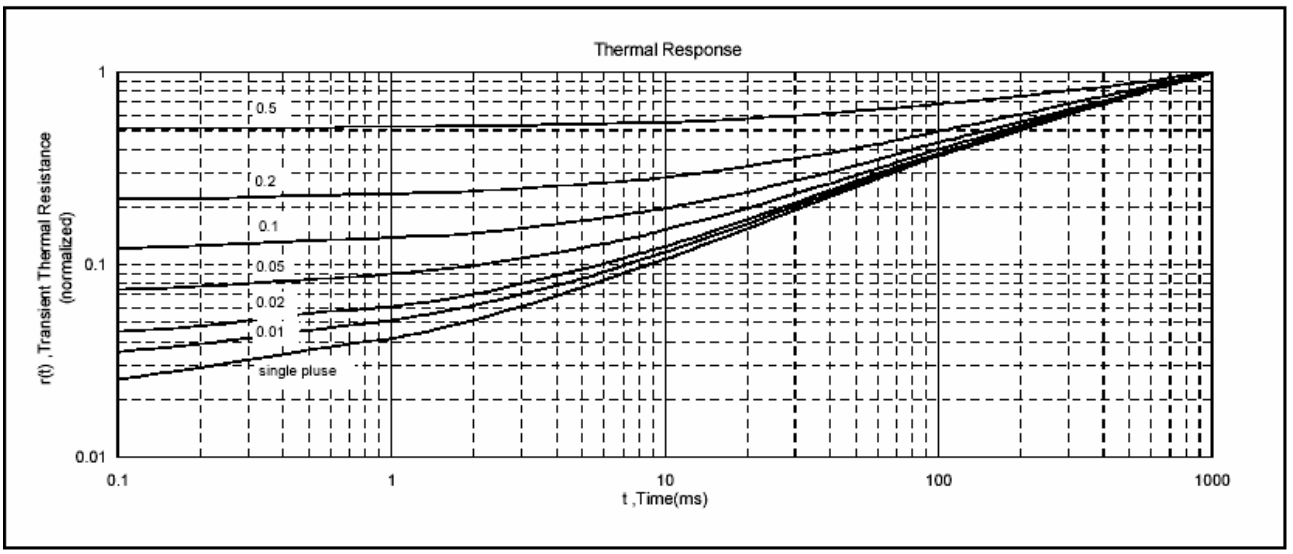
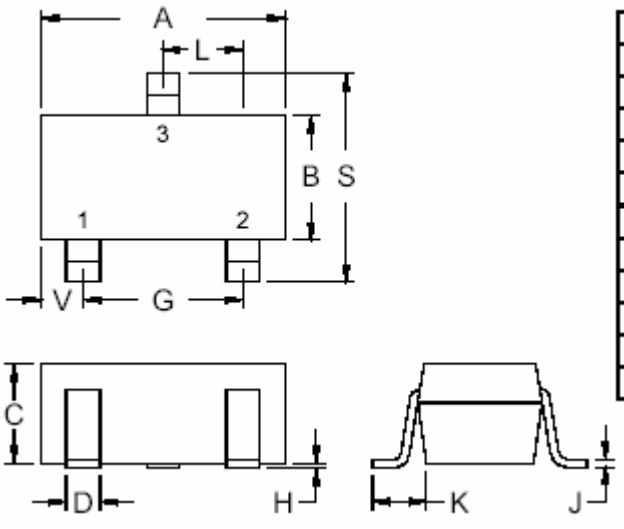






SOT-23 Dimension & Mechanical Drawing



DIM	Min.	Max.
A	2.80	3.04
B	1.20	1.60
C	0.89	1.30
D	0.30	0.50
G	1.70	2.30
H	0.013	0.10
J	0.085	0.177
K	0.32	0.67
L	0.85	1.15
S	2.10	2.75
V	0.25	0.65

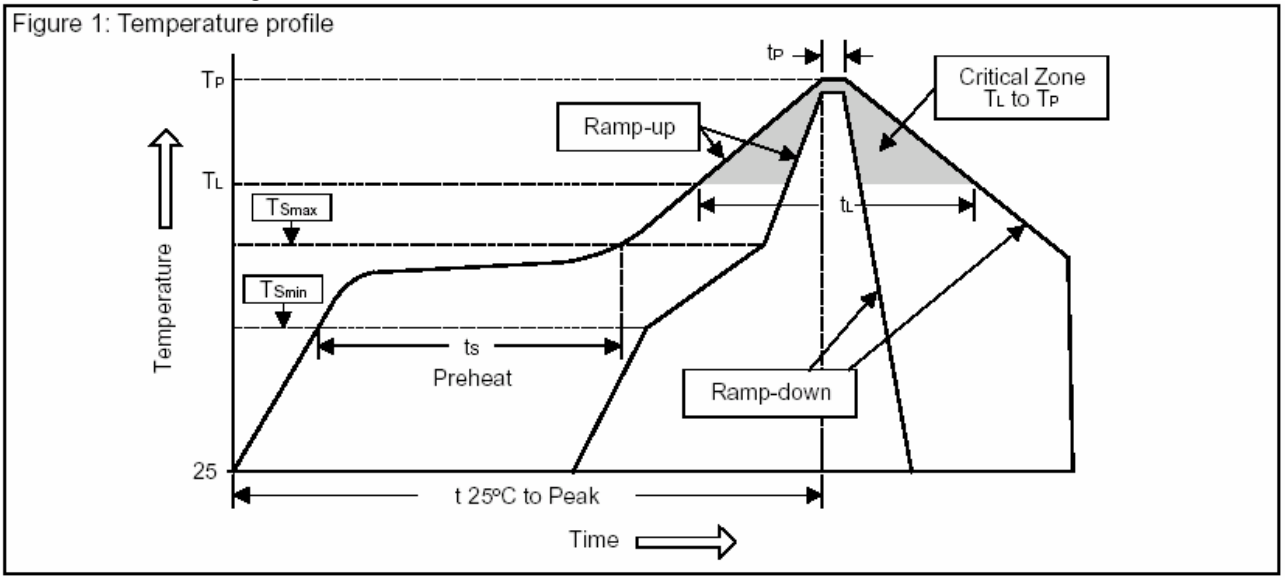
*: Typical, Unit: mm

3-Lead STO-23 Plastic
Surface Mounted Package
SONGROCK
Package Code: N

Soldering Methods for Products of SONGROCK

1. Storage environment: Temperature=10℃~35℃Humidity=65%± 15%
2. Reflow soldering of surface-mount devices

Figure 1: Temperature profile



Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Average ramp-up rate (T_L to T_P)	<3°C/sec	<3°C/sec
Preheat - Temperature Min (Ts_{min}) - Temperature Max (Ts_{max}) - Time (min to max) (ts)	 100°C 150°C 60~120 sec	 150°C 200°C 60~180 sec
Tsmax to T_L - Ramp-up Rate	 <3°C/sec	 <3°C/sec
Time maintained above: - Temperature (T_L) - Time (t_L)	 183°C 60~150 sec	 217°C 60~150 sec
Peak Temperature (T_P)	240°C +0/-5°C	260°C +0/-5°C
Time within 5°C of actual Peak Temperature (t_P)	10~30 sec	20~40 sec
Ramp-down Rate	<6°C/sec	<6°C/sec
Time 25°C to Peak Temperature	<6 minutes	<8 minutes

3. Flow (wave) soldering (solder dipping)

Products	Peak temperature	Dipping time
Pb devices.	245°C ±5°C	5sec ±1sec
Pb-Free devices.	260°C +0/-5°C	5sec ±1sec