

SOT-23 Plastic-Encapsulate MOSFETS

RC02N10T3

N-Channel 100-V(D-S) MOSFET

V(BR)DSS	RDS(on)MAX	ID
100 V	6Ω@10V	0.17A
	10Ω@4.5V	

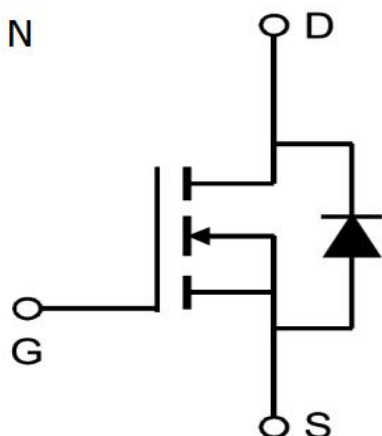
FEATURE:

- Rugged and Reliable
- High density cell design for extremely low RDS(on)
- Surface Mount Package
- Voltage Controlled Small Signal Switch

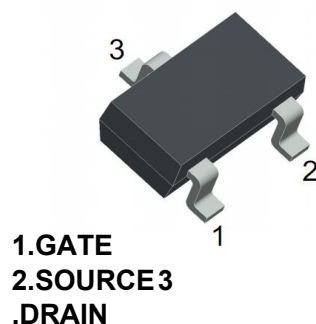
APPLICATION:

- ※ Small Servo Motor Controls
- ※ Power MOSFET Gate Drivers
- ※ Switching Application

Equivalent Circuit:



SOT- 23



Mosfet Maximum ratings (Ta=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	VDS	100	V
Gate-Source Voltage	VGS	±20	
Continuous Drain Current	ID	0.17	A
Pulsed Drain Current (tp=10us)	IDM	0.68	A
Continuous Source-Drain Current(Diode Conduction)	IS	0.17	A
Power Dissipation	PD	0.35	W
Thermal Resistance from Junction to Ambient	RθJA	357	°C/W
Junction Temperature	TJ	150	°C
Storage Temperature	TSTG	-55~+150	°C
Lead Temperature for Soldering Purposes(1/8 from case for	TL	260	°C

SOT-23 Plastic-Encapsulate MOSFETS

RC02N10T3

MOSFET ELECTRICAL CHARACTERISTICS

unless otherwise specified Ta = 25 °C

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	V(BR)DSS	VGS = 0V, ID =250μA	100			V
Gate-threshold voltage	VGS(th)	VDS =VGS, ID =250μA	1		2.8	V
Gate-body leakage	IGSS	VDS =0V, VGS =±20V			±50	nA
Zero gate voltage drain current	IDSS	VDS =100V, VGS =0V			1	μA
Drain-source on-resistancea	RDS(on)	VGS =10V, ID = 0.17A		3.8	6	Ω
		VGS =4.5V, ID =0.17A		3.5	10	Ω
Forward transconductancea	gfs	VDS =10V, ID =170mA	80			mS
Diode forward voltage	VSD	IS=0.17A,VGS=0V		0.8	1.3	V
Dynamic Characteristics						
Input capacitance	Ciss	VDS =25V,VGS =0V, f=1MHz		29		pF
Output capacitance	Coss			10		pF
Reverse transfer capacitanceb	Crss			2		pF
Switchingb Characteristics						
Turn-on delay time	td(on)	VGS=10V, VDD=30V ID =0.17A, RGEN=50Ω			8	ns
Rise time	tr				8	ns
Turn-off delay time	td(off)				13	ns
Fall time	tf				16	ns
Total Gate Charge	Qg	VDS=10V, ID=0.17A, VGS=10V			2	nC
Gate-Source Charge	Qgs				0.25	nC
Gate-Drain Charge	Qgd				0.4	nC

Note :

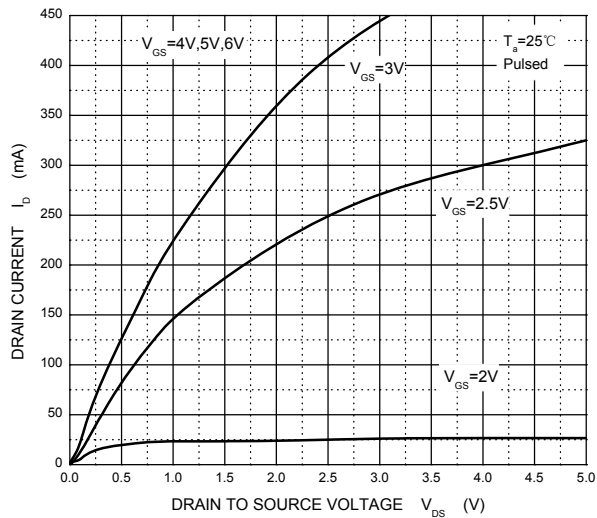
1. Surface mounted on FR4 board using the minimum recommended pad size.
2. Pulse Test ; Pulse Width =300μs, Duty Cycle ≤2%.
3. Switching characteristics are independent of operating junction temperature.
4. Gararanted by design, not subject to producing.

SOT-23 Plastic-Encapsulate MOSFETS

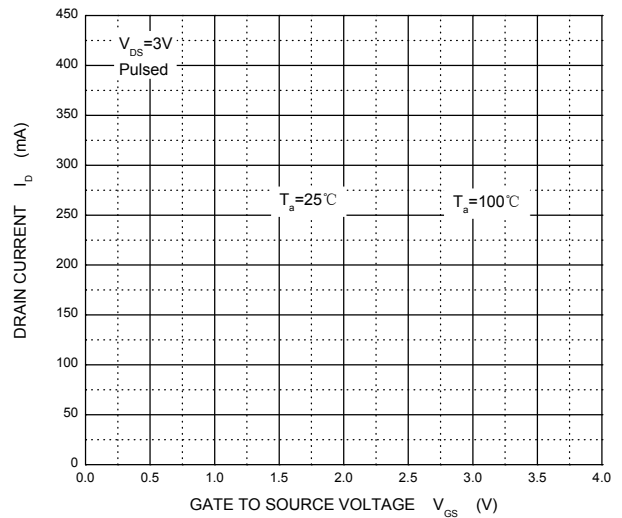
RC02N10T3

Typical Characteristics

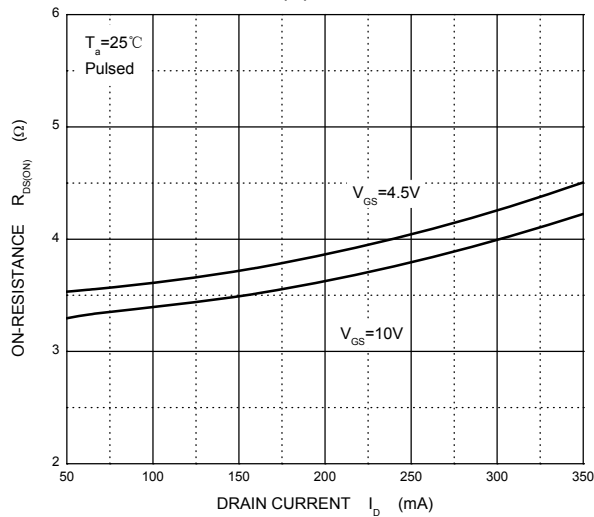
Output Characteristics



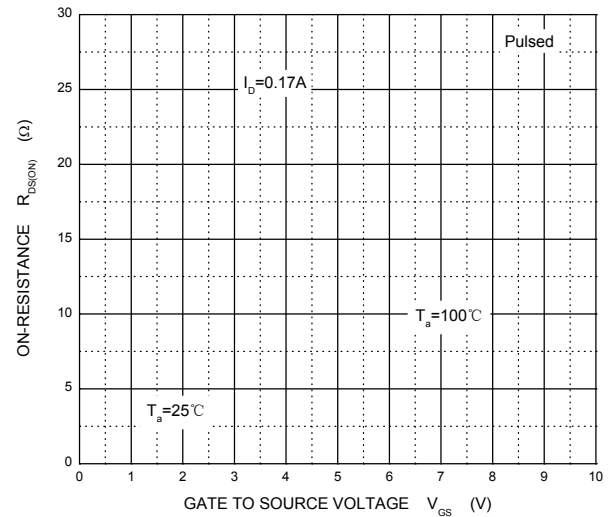
Transfer Characteristics



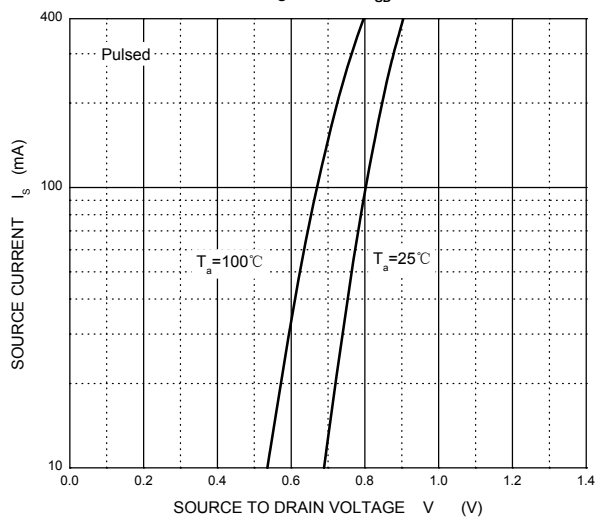
$R_{DS(ON)}$ — I_D



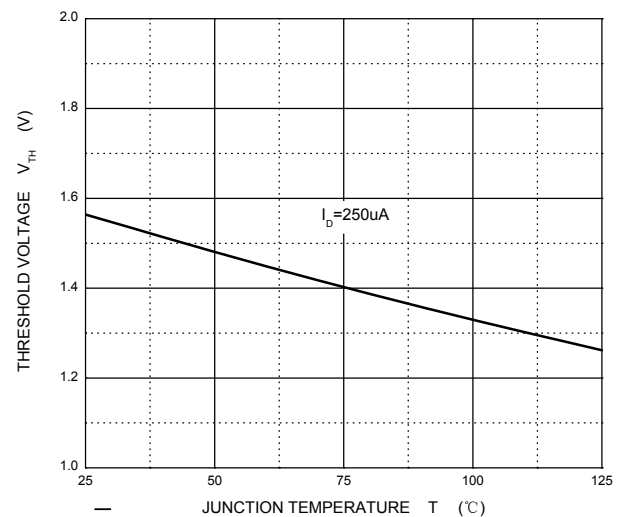
$R_{DS(ON)}$ — V_{GS}



I_S — V_{SD}



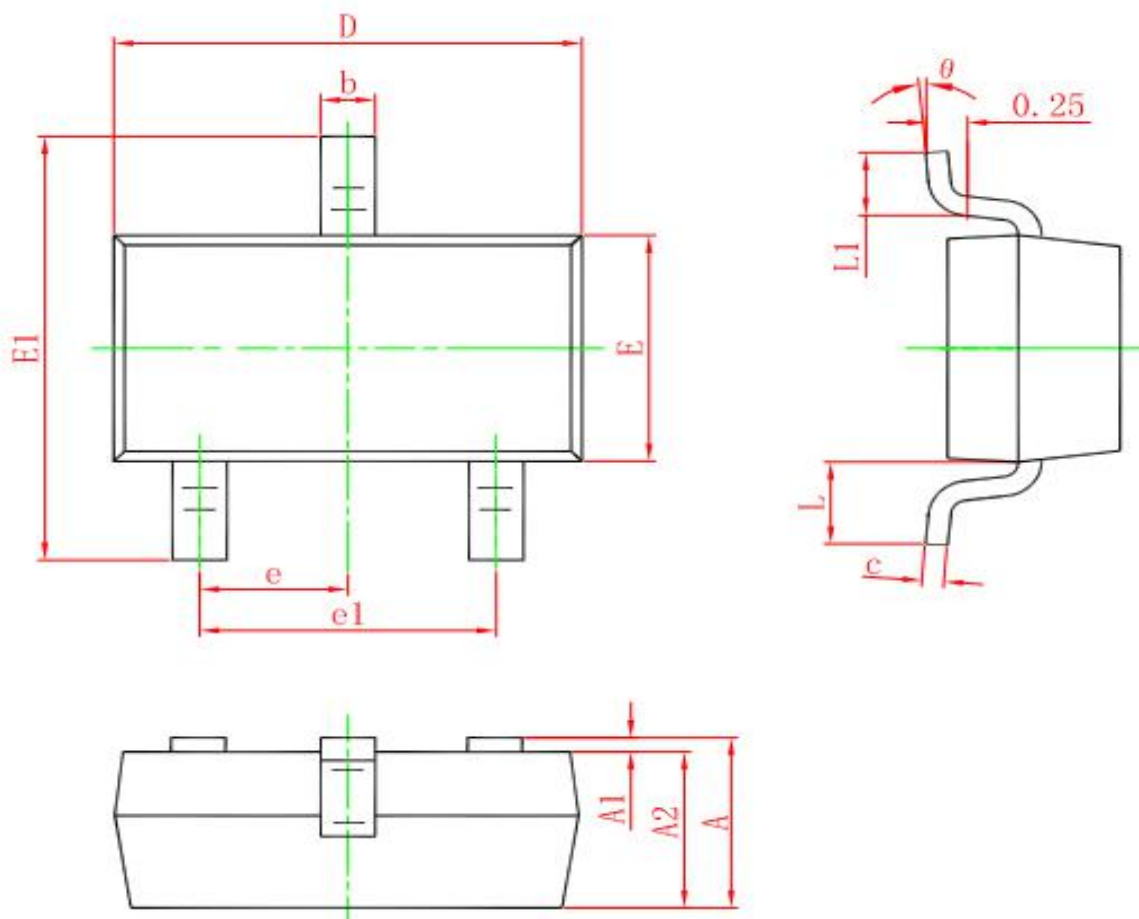
Threshold Voltage



SOT-23 Plastic-Encapsulate MOSFETS

RC02N10T3

SOT-23 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L	0.550 REF.		0.022 REF.	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°