DN3402

N-Channel MOSFET

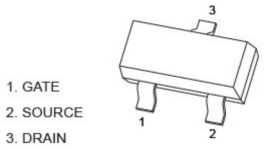
General description
SOT-23 Plastic-Encapsulate Mosfet

FEATURES
- Lead free product is acquired
- Surface mount package

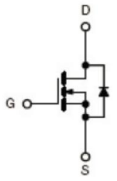
MECHANICAL DATA
- SOT-23 Small Outline Plastic Package
- Epoxy UL: 94V-0
- Mounting Position: Any

Marking: R2

SOT-23



Equivalent Circuit



Maximum Ratings & Thermal Characteristics T_A = 25°C unless otherwise noted

Parameters	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±12	V
Continuous Drain Current	I_D	4	A
Drain Current-Pulsed(note 1)	I_{DM}	15	
Power Dissipation	P_D	350	mW
Junction Temperature	T_j	150	℃
Storage Temperature	Tstg	-50-+150	℃
Thermal Resistance From Junction to Ambient (note 2)	$R_{\theta JA}$	357	℃/W

Electrical Characteristics

T_A = 25°C unless otherwise noted

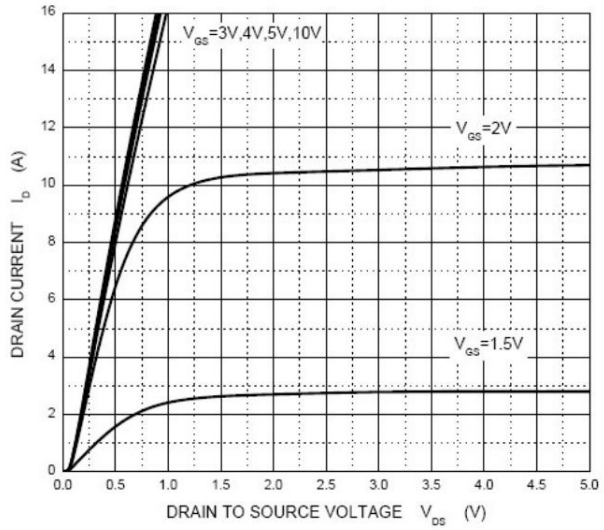
Parameter	Symbols	Test Condition	Limits			Unit
			Min	Typ	Max	
Off characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250uA	30			V
Zero Gate Voltage Drain current	I_{DSS}	V_{DS}=24V, V_{GS}=0V			1	uA
Gate-body Leakage	I_{GSS}	V_{DS}=±12V, V_{DS}=0V			±100	nA
On characteristics						
Drain-Source On-Resistance (note 3)	$R_{DS(ON)}$	V_{GS}=10V, I_D=4A		33	55	mΩ
		V_{GS}=4.5V, I_D=3A		39	70	
		V_{GS}=2.5V, I_D=2A		48	110	
Forward trans conductance	g_{fs}	V_{DS}=15V, I_D=4A		8		S
Gate-Threshold voltage*	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250uA	0.6	0.85	1.4	V
Dynamic characteristics (note 4,5)						
Input capacitance	Ciss	V_{DS}=15V, V_{GS}=0V,f=1MHz		390		pF
Output capacitance	Coss			54.5		
Reverse Transfer capacitance	Crss			41		
Gate resistance	Rg	V_{DS}=0V, V_{GS}=0V,f=1MHz		3		Ω
Switching characteristics (note 4,5)						
Turn-on Time	td(on)	V_{GS}=10V, R_L=3.75Ω, V_{DS}=15V, R_{GEN}=6Ω		3.3		ns
Rise time	tr			1		
Turn-off Time	td(off)			21.7		
Fall time	tf			2.1		
Total gate charge	Qg	V_{DS}=15V, V_{GS}=4.5V, I_D=4A		4.34		nC
Gate-source charge	Qgs			0.6		nC
Gate-drain charge	Qgd			1.38		nC
Drain-source diode characteristics and maximum ratings						
Diode forward voltage	V_{SD}	I_S=1A, V_{GS}=0V			1.0	V

Notes:

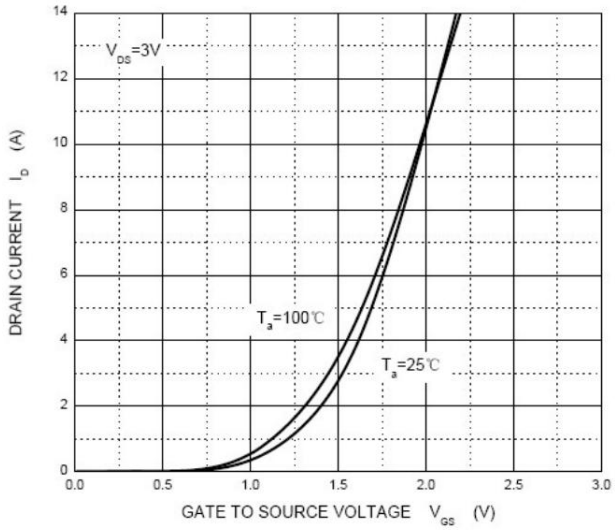
1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t<5 sec.
3. Pulse Test: Pulse Width ≤300us, Duty Cycle≤2%.
4. Guaranteed by design, not subject to production testing.

Typical characteristics

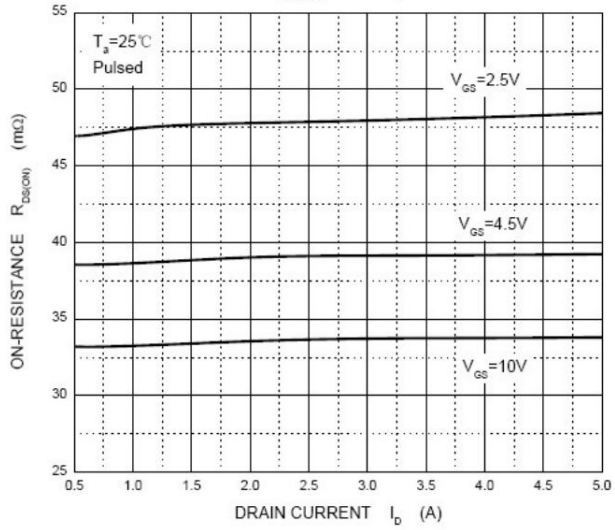
Output Characteristics



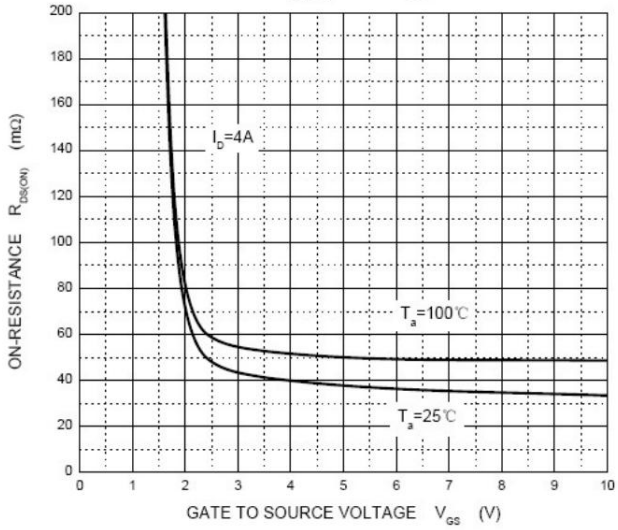
Transfer Characteristics



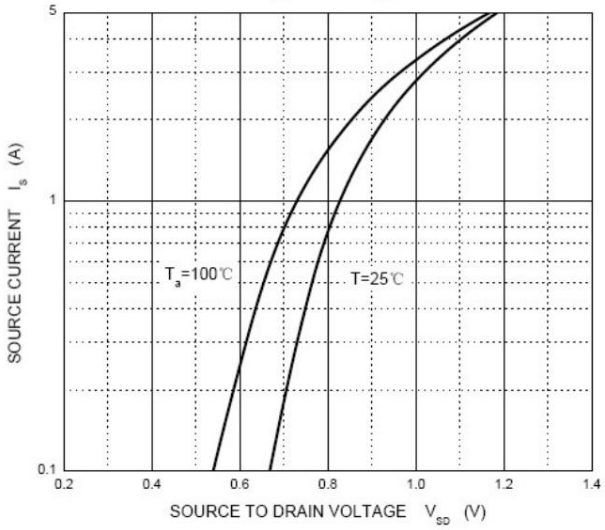
$R_{DS(ON)}$ —— I_D



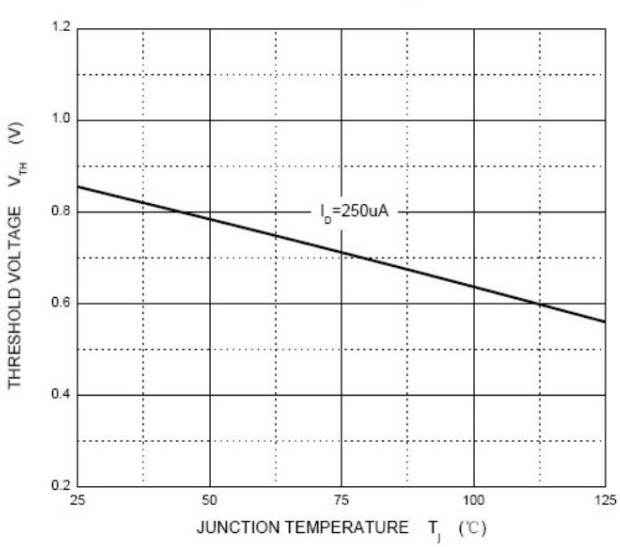
$R_{DS(ON)}$ —— V_{GS}



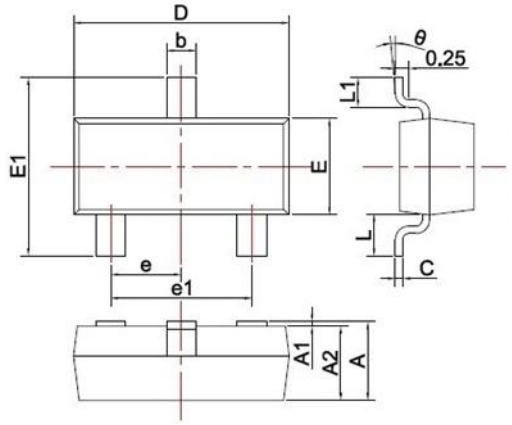
I_S —— V_{SD}



Threshold Voltage



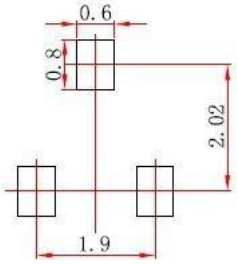
SOT-23 PACKAGE OUTLINE Plastic surface mounted package



SYMBOL	DIMENSIONS	
	MIN.	MAX.
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950TYP	
e1	1.800	2.000
L	0.550REF	
L1	0.300	0.500
θ	0°	8°

Unit: mm

Recommended land dimensions for SOT-23 diode. Electrode patterns for PCBs



Note:
1.Controlling dimension:In millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.

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