SOT-323 Plastic-Encapsulate MOSFETS

Features

- V_{DS}=30V
- I_D=0.1A
- $R_{DS(on)}$@V_{GS}=4V ＜ 8Ω
- $R_{DS(on)}$@V_{GS}=2.5V ＜ 13Ω
- Trench Power LV MOSFET technology
- High density cell design for low $R_{DS(ON)}$
- High Speed switching

Drain-source Voltage
30 V
Drain Current
0.1 Ampere

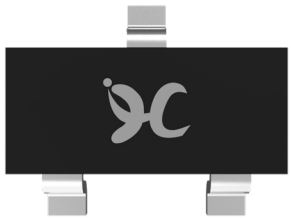
Applications

- Interfacing
- Load switch

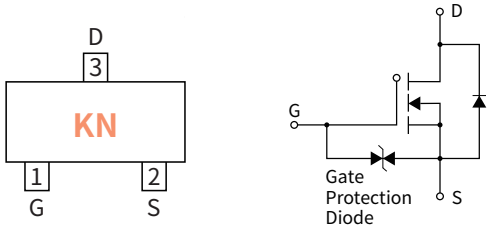
Mechanical Data

- Case: SOT-323
  Molding compound meets UL 94V-0 flammability rating, RoHS-compliant,halogen-free
- Terminals: Solder plated, solderable per MIL-STD-750,Method 2026

SOT-323



Function Diagram



Maximum Ratings (Ta=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	VALUE
Drain-source Voltage	V_{DS}	V	30
Gate-source Voltage	V_{GS}	V	±20
Drain Current	I_d	A	0.1
Pulsed Drain Current	I_{DM}	A	0.4
Total Power Dissipation	P_d	mW	200
Storage temperature	T_{stg}	°C	-55 ~+150
Junction temperature	T_j	°C	-55 ~+150
Typical Thermal Resistance	$R_{\theta J\text{-}A}$	°C /W	417

Ordering Information

PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SOT-323	R1	0.005	3000	45000	180000	7''

Static Parameter Characteristics (Ta=25°C Unless otherwise specified)

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V, I_D=250μA	V	30	—	—
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=30V,V_{GS}=0V	μA	—	—	1.0
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±20V, V_{DS}=0V	μA	—	—	±2.0
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}= 3.0V, I_D=0.1mA	V	0.8	—	1.5
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=4.0V, I_D=10mA	Ω	—	—	8.0
		V_{GS}=2.5V, I_D=1.0mA		—	—	13
Forward Transconductance	gfs	V_{DS}=3.0V, I_D=10mA	mS	20	—	—

Dynamic Parameters (Ta=25°C Unless otherwise specified)

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Input Capacitance	C_{iss}	V_{DS}=5.0V V_{GS}=0V f=1MHZ	pF	—	13	—
Output Capacitance	C_{oss}			—	9.0	—
Reverse Transfer Capacitance	C_{rss}			—	4.0	—

Switching Parameters (Ta=25°C Unless otherwise specified)

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Turn-on Delay Time	$t_{D(on)}$	V_{GS}=5.0V V_{DS}=5.0V I_D=10mA R_{GEN}=10Ω R_L=500Ω	ns	—	15	—
Turn-on Rise Time	t_r			—	35	—
Turn-off Delay Time	$t_{D(off)}$			—	80	—
Turn-off fall Time	t_f			—	80	—

Ratings And Characteristics Curves (Ta=25°C Unless otherwise specified)

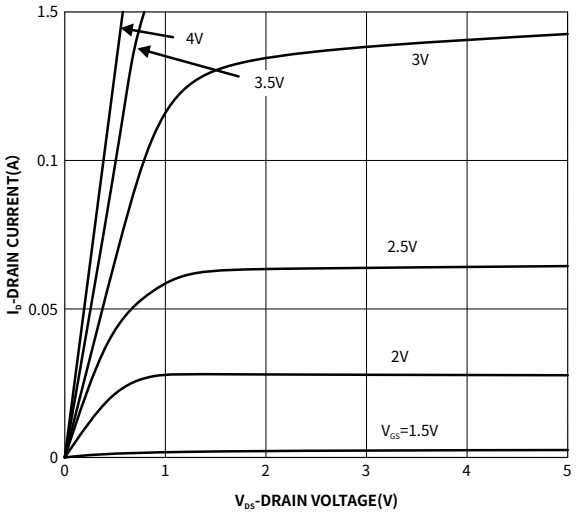


Fig.1 Output Characteristics

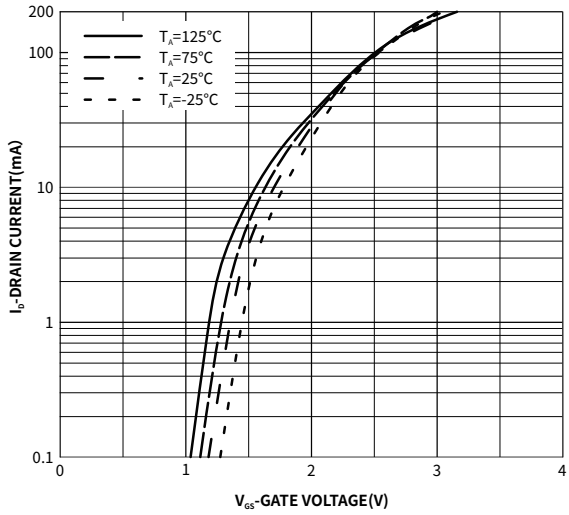


Fig.2 Transfer Characteristics

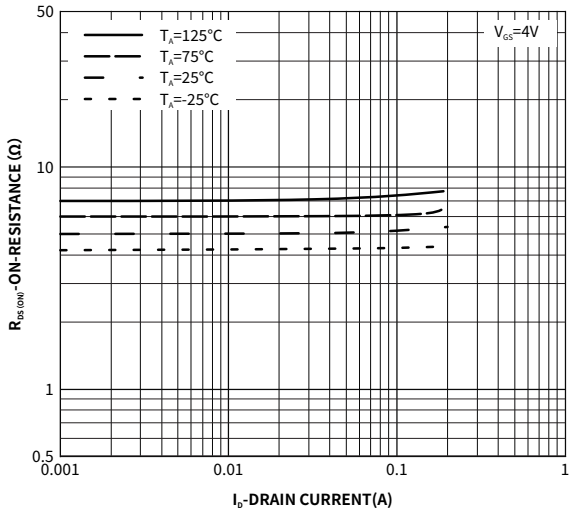


Fig.3 On-Resistance vs. Drain Current and Gate Voltage

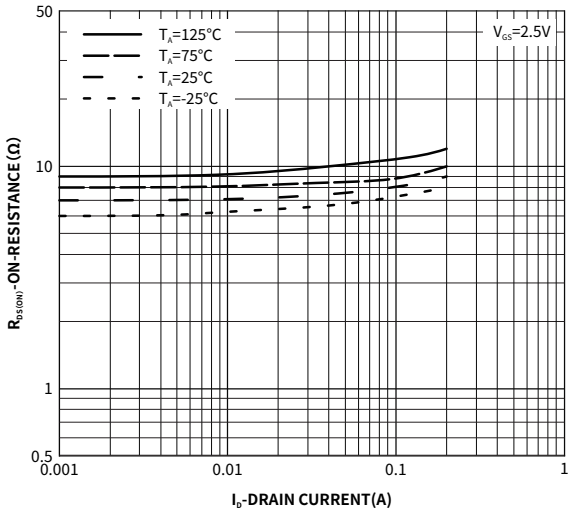


Fig.4 On-Resistance vs. Drain Current and Gate Voltage

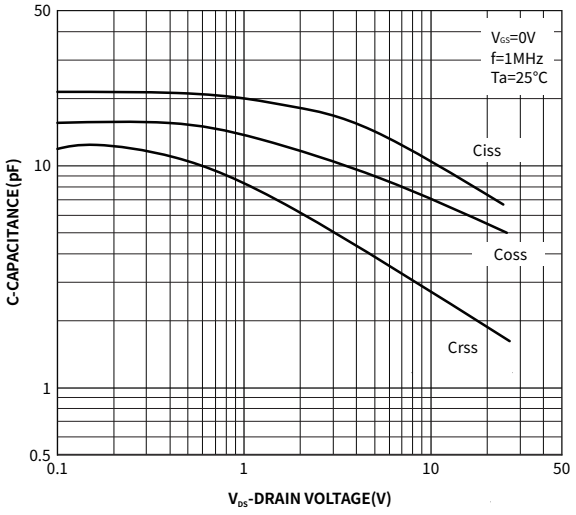
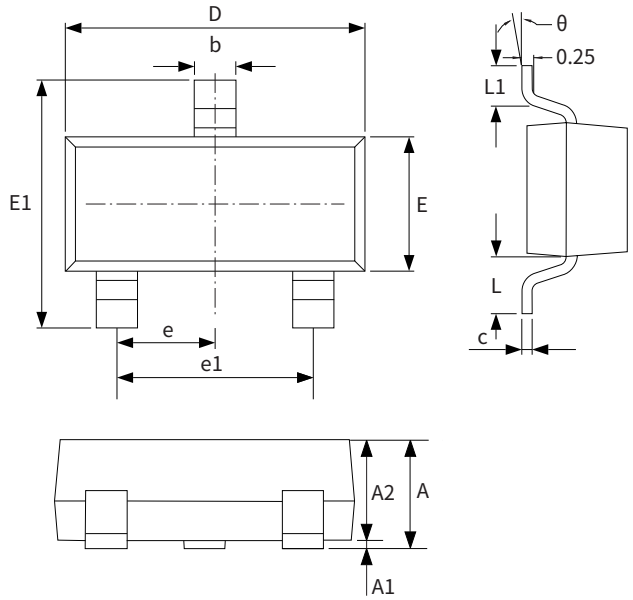


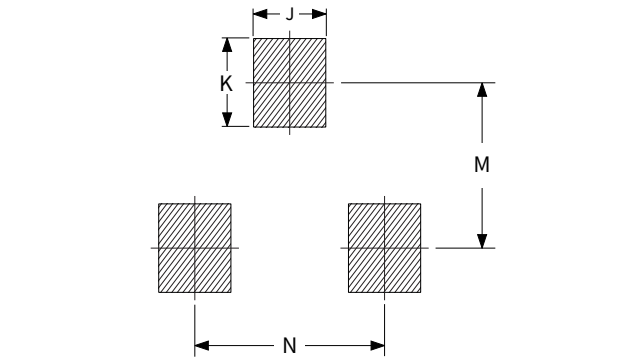
Fig.5 Capacitance Characteristics

Package Outline Dimensions (SOT-323)



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.90	1.10	0.035	0.043
A1	-	0.10	-	0.004
A2	0.90	1.00	0.035	0.039
b	0.15	0.40	0.012	0.020
c	0.10	0.25	0.004	0.010
D	1.80	2.20	0.071	0.087
E	1.15	1.35	0.045	0.053
E1	2.15	2.45	0.085	0.096
e	0.650TYP		0.026TYP	
e1	1.20	1.40	0.047	0.055
L	0.525REF		0.021REF	
L1	0.26	0.46	0.010	0.018
θ	-	8°	-	8°

Suggested Pad Layout



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
J	0.65	0.75	0.026	0.030
K	0.85	0.95	0.033	0.037
M	1.85	1.95	0.073	0.077
N	1.25	1.35	0.049	0.053