

N-Channel MOSFET
PRIMARY CHARACTERISTICS

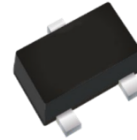
BV _{DSS}	R _{DS(ON)} MAX	I _D
60V	3Ω@V _{GS} =10V	340mA
	4Ω@V _{GS} =4.5V	

Features

- High Density Cell Design for Low RDS(ON)
- Voltage Controlled Small Signal Switch
- Small Outline Surface Mount Package
- RoHS Compliant / Green EMC

Mechanical Data

- SOT-523 Small Outline Plastic Package
- Epoxy UL: 94V-0
- Mounting Position: Any

SOT-523

Applications

- Load Switch
- PWM Applications
- Power Management

Ordering Information

Orderable Part Number	Package Type	Device Marking	Form	Quantity (pcs)
2N7002KT	SOT-523	.K72	7" Tape&Reel	3,000

Maximum Ratings (@ T_A = 25°C, unless otherwise specified.)

Parameter	Symbol	Value	Unit
Drain - Source Voltage	V _{DS}	60	V
Gate - Source Voltage	V _{GS}	±20	V
Continuous Drain Current (V _{GS} = 4.5V) ⁽¹⁾	I _D	0.34	A
Pulsed Drain Current ⁽²⁾	I _{DM}	0.8	A
Power Dissipation	P _D	0.35	W
Junction & Storage Temperature Range	T _J , T _{STG}	-55 ~ +150	°C

Thermal Characteristics

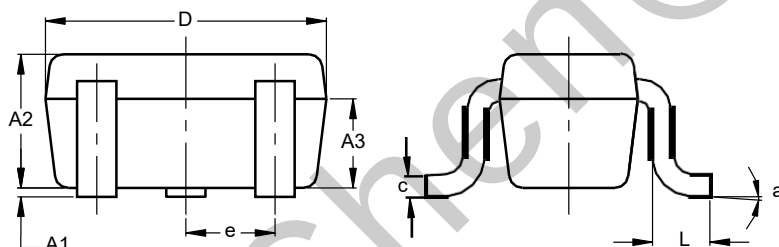
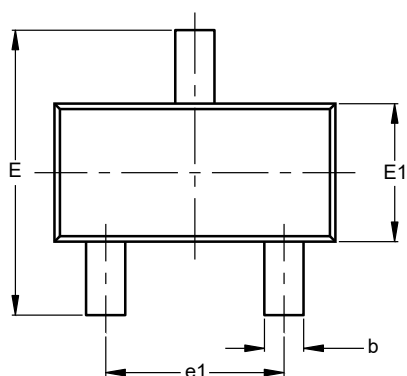
Parameter	Symbol	Typ.	Max.	Unit
Thermal Resistance, Junction-to-Ambient ⁽³⁾	R _{θJA}	357	-	°C/W

Electrical Characteristics (@ $T_J = 25^\circ\text{C}$, unless otherwise specified.)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Off Characteristics ⁽⁴⁾						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	VGS=0V, ID=10μA	60	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	VDS=60V, VGS = 0V,TJ=25°C	-	-	1	μA
Gate-Source Leakage Current	I _{GSS}	VGS=±20V, VDS = 0V	-	-	±10	nA
On Characteristics ⁽⁴⁾						
Gate Threshold Voltage	V _{GS(th)}	VDS=VGS, , ID=250μA	1.0	-	2.5	V
Static Drain-Source On-Resistance	R _{DS(ON)}	VGS=4.5V, ID=200mA	-	-	4	Ω
		VGS=10V, ID=500mA	-	-	3	Ω
Forward Transconductance	g _{fs}	VDS=10V, ID=200mA	0.08	-	-	S
Diodes Forward Voltage	V _{SD}	IS=200mA, VGS=0V	-	-	1.3	V
Dynamic Characteristics ⁽⁴⁾						
Input Capacitance	C _{iss}	VDS=25V, VGS=0V, f=1MHz	-	28	-	pF
Output Capacitance	C _{oss}		-	1.6	-	pF
Reverse Transfer Capacitance	C _{rss}		-	1.1	-	pF
Switching Characteristics ⁽⁵⁾						
Turn-On DelayTime	t _{d(on)}	VGS=10V, VDD=30V, ID=200mA, RG=3.9Ω, RL=150Ω	-	3.8	-	ns
Rise Time	t _r		-	3.5	-	ns
Turn-Off DelayTime	t _{d(off)}		-	12.4	-	ns
Fall Time	t _f		-	44.4	-	ns
Gate Charge Characteristics ⁽⁵⁾						
Total Gate Charge	Q _g	VDS=30V,ID=500mA, VGS=10V	-	1.2	-	nC
Gate-Source Charge	Q _{gs}		-	0.5	-	nC
Gate-Drain Charge	Q _{gd}		-	0.1	-	nC
Drain-Source Diode Characteristics ⁽⁵⁾						
Notes:						
1. This current is chip limited, which is calculated based on Rthja.						
2. This current is calculated on single pulse with 10μs Single Pulse .						
3. Device mounted on FR-4 substrate PC board with 2oz copper in 1inch square cooling area.						
4. Short duration pulse test used to minimize self-heating effect.						
5. Defined by design, not subject to production.						

Outline Drawing

SOT-523

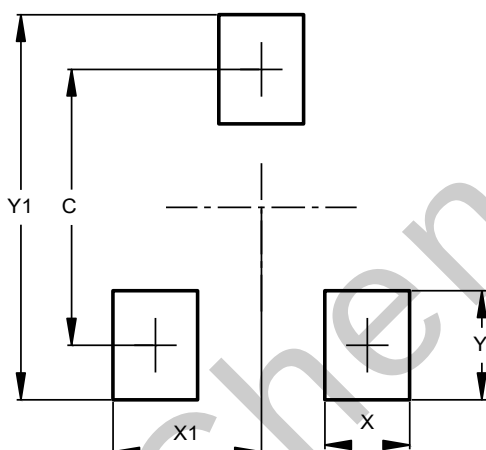


SOT523			
Dim	Min	Max	Typ
A1	0.00	0.10	0.05
A2	0.60	0.80	0.75
A3	0.45	0.65	0.50
b	0.15	0.30	0.22
c	0.10	0.20	0.12
D	1.50	1.70	1.60
E	1.45	1.75	1.60
E1	0.75	0.85	0.80
e	0.50 BSC		
e1	0.90	1.10	1.00
L	0.20	0.40	0.33
a	0°	--	8°

All Dimensions in mm

Suggested Soldering Pad Layout

SOT-523



Dimensions	Value (in mm)
C	1.29
X	0.40
X1	0.70
Y	0.51
Y1	1.80

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