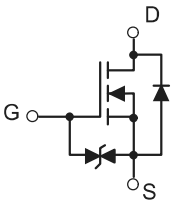
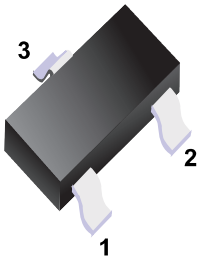
60V N-Channel Enhancement Mode Power MOSFET

MAIN CHARACTERISTICS

I_D	340mA
V_{DSS}	60V
R_{DSON}-typ(@V_{GS}=10V)	＜5Ω(Typ:0.9Ω)
R_{DSON}-typ(@V_{GS}=4.5V)	＜5.3Ω(Typ:1.1Ω)





1.Gate
2.Source
3.Drain

SOT-323

FEATURE

- High density cell design for Low RDS(on)
- Voltage controlled small signal switch
- Rugged and reliable
- High saturation current capability
- ESD protected

APPLICATION

- Load Switch for Portable Devices
- DC/DC Converter

Marking Code	
2N7002KW	K72

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	60	V
Gate - Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	340	mA
Pulsed Drain Current(note1)	I_{DM}	800	mA
Power Dissipation	P_D	0.2	W
Operating Junction Temperature Range	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C
Thermal Resistance Junction-Ambient	$R_{\theta JA}$	625	°C/W

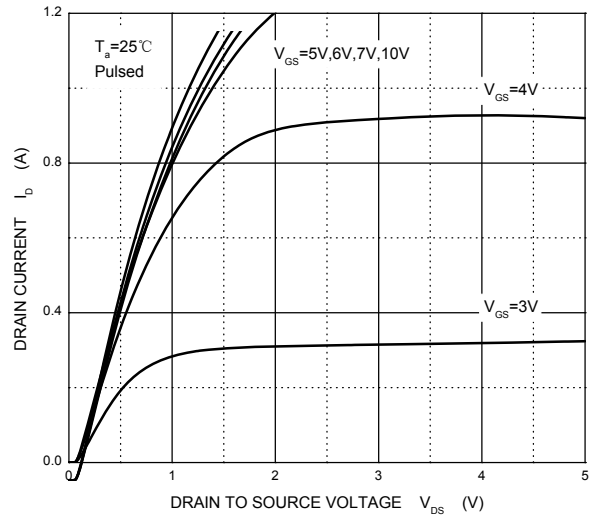
Maximum Ratings at Ta=25°C unless otherwise specified

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250uA	$V_{(BR)DSS}$	60	-	-	V
GateThreshold Voltage (note 2)	V_{DS} =V_{GS}, I_D =1mA	$V_{GS(th)}$	1	1.3	2.5	V
Zero Gate Voltage Drain Current	V_{DS} =48V,V_{GS} = 0V	I_{DSS}	-	-	1	μA
Gate-Source Leakage Current	V_{GS} =±20V, V_{DS} = 0V	I_{GSS}	-	-	±10	μA
Drain-Source On-Resistance (note 2)	V_{GS} =4.5V, I_D =200mA	$R_{DS(ON)}$	-	1.1	5.3	Ω
	V_{GS} =10V, I_D =500mA		-	0.9	5	Ω
Input Capacitance	V_{DS} =10V V_{GS} =0V f =1MHz	C_{iss}	-	-	40	pF
Output Capacitance		C_{oss}	-	-	30	
Reverse Transfer Capacitance		C_{rss}	-	-	10	
Turn-on Delay Time	V_{GS}=10V,V_{DD}=50V, R_G=50Ω R_{GS}=50Ω , R_L=250Ω	$t_{d(on)}$	-	-	10	ns
Turn-off Delay Time		$t_{d(off)}$	-	-	15	
Reverse Recovery Time	V_{GS}=0V,I_S=300mA,V_R=25V, dIs/dt=-100A/us	t_{rr}	-	30	-	
Recovered Charge	V_{GS}=0V,I_S=300mA,V_R=25V dIs/dt=-100A/us	Q_r	-	30	-	nC
Gate-Source Breakdown Voltage	Igs=±1mA(Open Drain)	BV_{GSO}	±21.5	-	±30	V
Diode Forward Voltage(note 2)	I_S=300mA, V_{GS} = 0V	V_{SD}	-	-	1.5	V
Continuous Diode Forward Current		I_S	-	-	0.2	A
Pulsed Diode Forward Current(note1)		I_{SM}	-	-	0.53	A

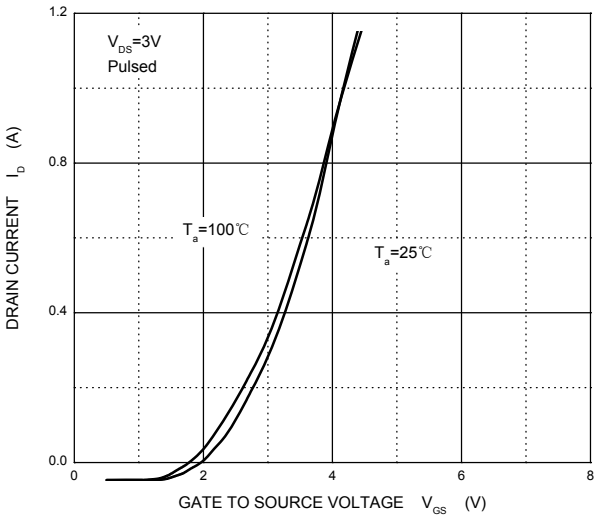
Notes :
1. Repetitive rating:Pluse width limited by junction temperature.
2. Pulse Test : Pulse width ≤300μs, duty cycle≤2%.
3. Guaranteed by design, not subject to production testing.

Typical Characteristics

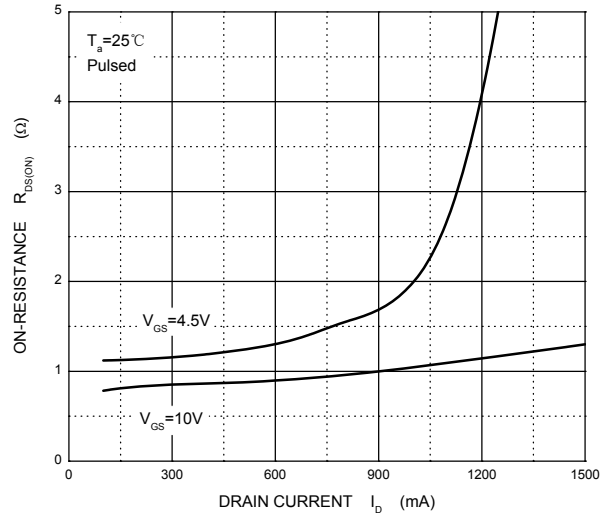
Output Characteristics



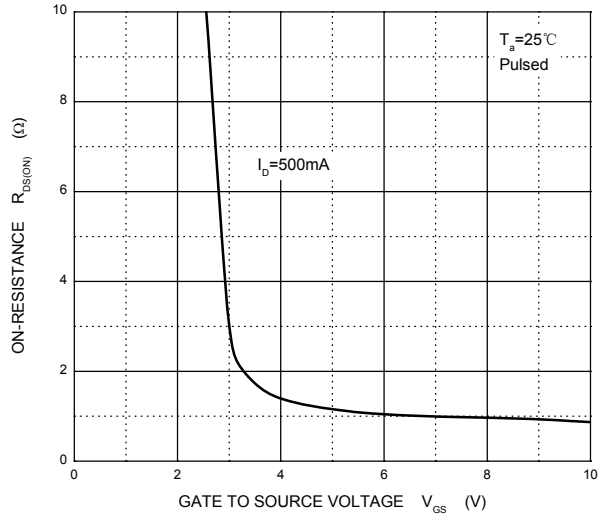
Transfer Characteristics



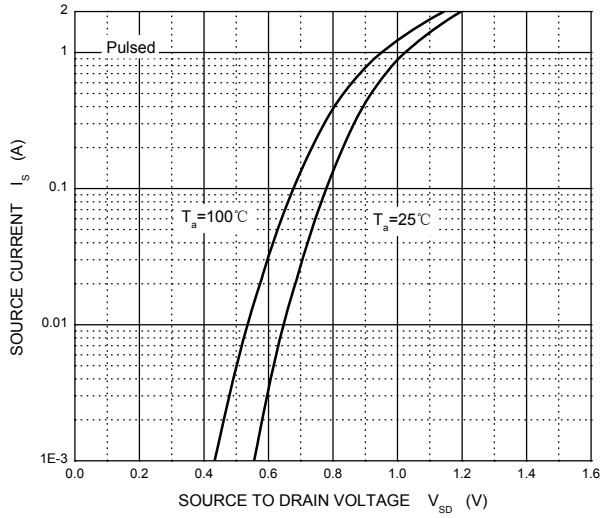
$R_{DS(ON)}$ —— I_D



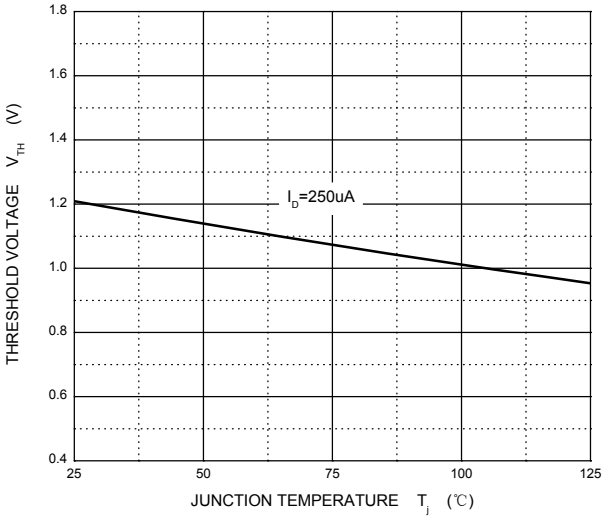
$R_{DS(ON)}$ —— V_{GS}



I_S —— V_{SD}



Threshold Voltage

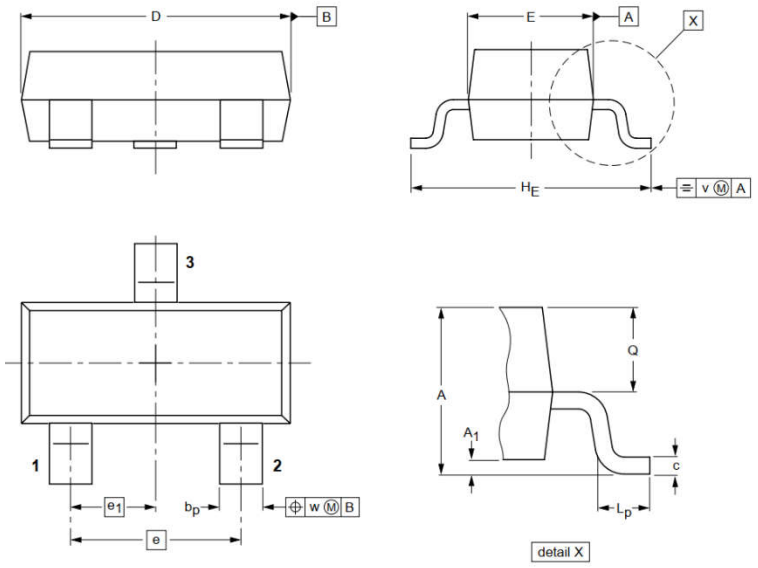


Ordering information

Package	Packing Description	Base Quantity	Packing Quantity
SOT-323	Tape/Reel,7"reel	3000pcs/Reel	24000PCS/Box 120000PCS/Carton

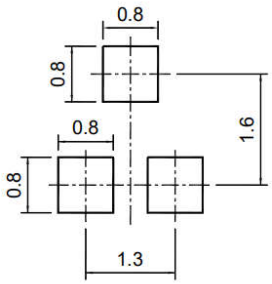
Package Dimensions

SOT-323



Dim.	Millimeter (mm)		mil	
	Min.	Max.	Min.	Max.
A	0.8	1.1	32	43
A1	0.1		4	
bp	0.3	0.4	12	16
C	0.10	0.25	4	10
D	1.8	2.2	71	87
E	1.15	1.35	45	53
E	1.3		51	
E1	0.65		26	
HE	2.0	2.2	79	87
Lp	0.15	0.45	6	18
Q	0.13	0.23	5.1	9
v	0.2		8	
W	0.2		8	

The recommended mounting pad size



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