

60V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

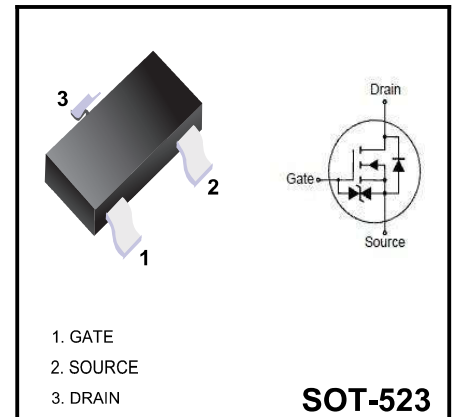
I_D	340mA
V_{DSS}	60V
$R_{DS(on)-typ}(@V_{GS}=10V)$	$< 3.0\Omega$ (Typ: 2.2Ω)
$R_{DS(on)-typ}(@V_{GS}=4.5V)$	$< 3.2\Omega$ (Typ: 2.4Ω)

FEATURES & APPLICATION

- ◆ High density cell design for low $R_{DS(on)}$
- ◆ Voltage controlled small signal switch
- ◆ Rugged and reliable
- ◆ High saturation current capability
- ◆ Load Switch for Portable Devices
- ◆ DC/DC Converter
- ◆ ESD protected

Mechanical Data

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



Marking Code	
2N7002KT	72K

Maximum Ratings & Thermal Characteristics

(Ratings at 25°C ambient temperature 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	0.34	A
Pulsed Drain Current (note 1)	I_{DM}	0.80	A
Power Dissipation	P_D	150	mW
Operating 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

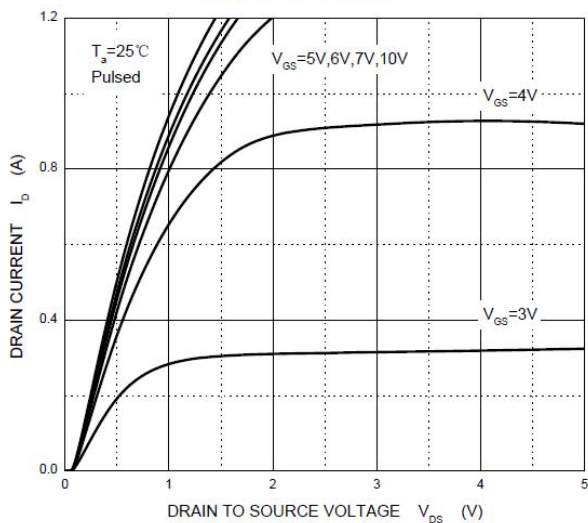
Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	BV_{DSS}	60	-	-	V
Gate-Source Threshold Voltage*	$V_{DS}=V_{GS}, I_D=1mA$	$V_{GS(th)}$	1.0	1.3	2.5	V
Gate-Source Leakage Current	$V_{GS} = \pm 20V, V_{DS} = 0V$	I_{GSS}	-	-	± 10	μA
Drain-Source Leakage Current	$V_{DS}=48V, V_{GS}=0V$	I_{DSS}	-	-	1	μA
On-state Drain Current	$V_{GS}=10V, V_{DS}=7V$	$I_{D(ON)}$	500	-	-	mA
Drain-source on-state resistance*	$V_{GS}=10V, I_D=500mA$	$R_{DS(ON)}$	-	2.2	3.0	Ω
	$V_{GS}=4.5V, I_D=200mA$		-	2.4	3.2	
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	$V_{GS}=10V, V_{DD}=50V, R_G=50\Omega$ $R_L=250\Omega, R_{GS}=50\Omega$	$t_{d(on)}$	-	-	10	ns
Turn-off Delay Time		$t_{d(off)}$	-	-	15	
Reverse Recovery Time	$V_{GS}=0V, V_R=25V, I_S=300mA$ $DI_S/dt=-100A/\mu s$	T_{rr}	-	30	-	
Recovered Charge	$I_S=\pm 1mA$	BV_{GSO}	± 21.5	-	± 32	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(note 1)		I_{SM}	-	-	0.53	A

Notes:

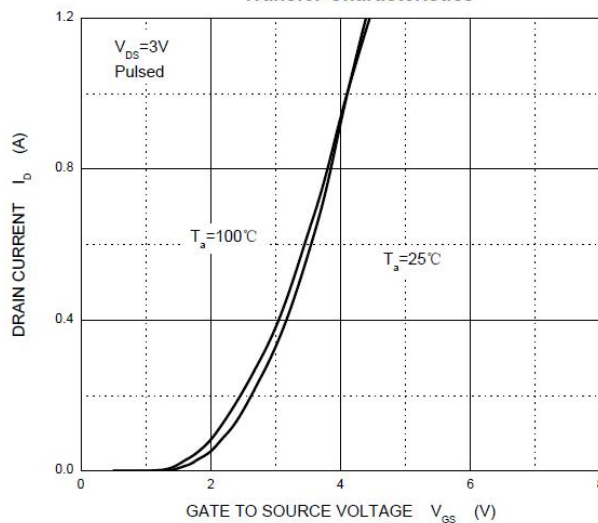
1. Repetitive rating : Pulse width limited by junction temperature
2. Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
3. Guaranteed design, not subject to production testing.

Typical Characteristics

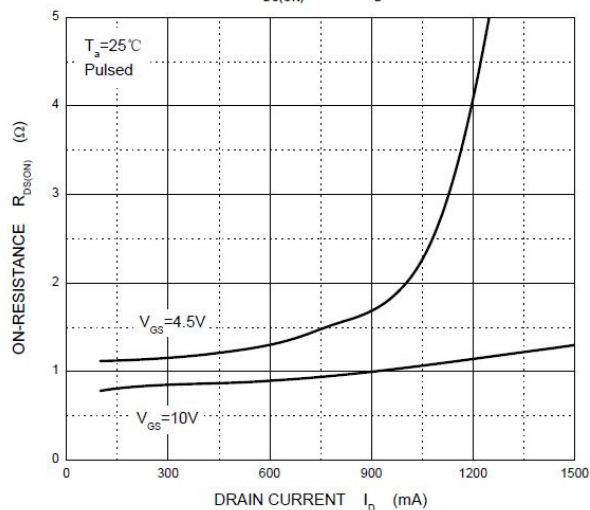
Output Characteristics



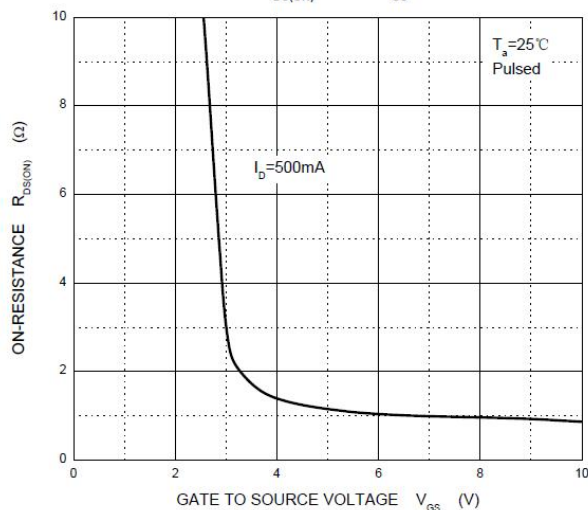
Transfer Characteristics



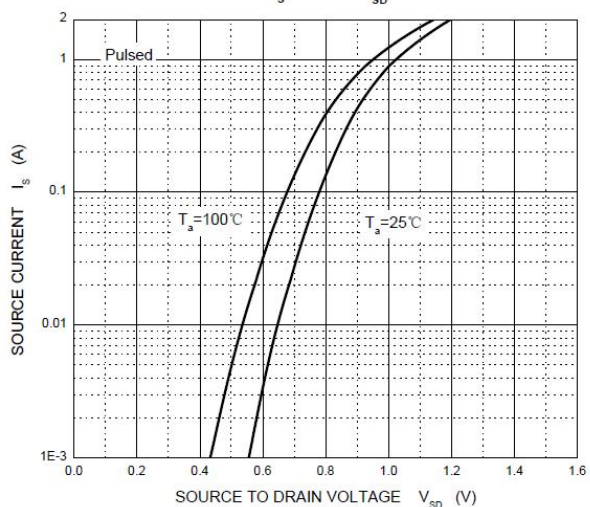
$R_{DS(ON)}$ — I_D



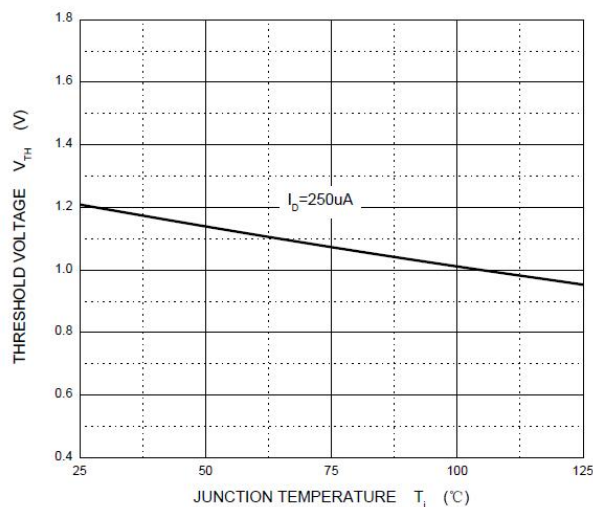
$R_{DS(ON)}$ — V_{GS}



I_S — V_{SD}



Threshold Voltage



Ordering information

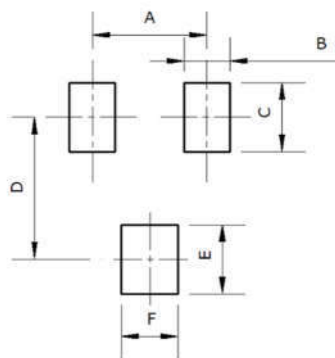
Package	Packing Description	Base Quantity	Packing Quantity
SOT-523	Tape/Reel, 7" reel	3000pcs/Reel	24000PCS/Box 120000PCS/Carton

Package Dimensions

SOT-523

Dim.	Millimeter (mm)		mil	
	Min.	Max.	Min.	Max.
A	1.50	1.70	59	67
B	0.75	0.85	30	33
C	1.45	1.75	57	69
D	0.50TYP		0.020TYP	
E	0.90	1.10	35	43
G	0.00	0.10	0	4
H	0.60	0.80	24	31
J	0.10	0.20	4	8
K	0.15	0.35	6	14
L	0.26	0.46	10	18

The recommended mounting pad size



Millimeter (mm)	
Dim.	TYP
A	1.00
B	0.40
C	0.60
D	1.24
E	0.60
F	0.50

Disclaimer

The information presented in this document is for reference only. Guangdong Youfeng Microelectronics Co.,Ltd. reserves the right to make changes without notice for the specification of the products displayed herein to improve reliability, function or design or otherwise. The product listed herein is designed to be used with ordinary electronic equipment or devices, and not designed to be used with equipment or devices which require high level of reliability and the malfunction of which would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), YFW or anyone on its behalf, assumes no responsibility or liability for any damages resulting from such improper use of sale. This publication supersedes & replaces all information previously supplied. For additional information, please visit our website <https://www.yfwdiode.com>, or consult YFW sales office for further assistance.