CHENMKO ENTERPRISE CO.,LTD

2N7002TESGP

SURFACE MOUNT
N-Channel Enhancement Mode Field Effect Transistor

VOLTAGE 60 Volts CURRENT 115 mAmpere

Halogens free devices

APPLICATION

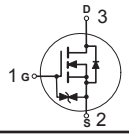
* Relay driver
* High speed line driver
* Logic level transistor

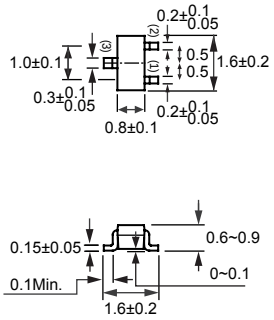
FEATURE

* Small surface mounting type. (SC-75/SOT-416)
* High density cell design for low $R_{DS(ON)}$.
* Suitable for high packing density.
* Rugged and reliable.
* High saturation current capability.
* ESD protect in input gate 1.5KV

SC-75/SOT-416

CIRCUIT





Dimensions in millimeters

SC-75/SOT-416

Absolute Maximum Ratings

T_A = 25°C unless otherwise noted

Symbol	Parameter	2N7002TESGP	Units
V_{DSS}	Drain-Source Voltage	60	V
V_{GSS}	Gate-Source Voltage	±20	V
I_D	Maximum Drain Current - Continuous	115	mA
	- Pulsed (Note 1)	800	
P_D	Maximum Power Dissipation (Note 2)	225	mW
T_J	Operating Temperature Range	-55 to 150	°C
T_{STG}	Storage Temperature Range	-55 to 150	°C

Note : 1. Pw <= 10uS , Duty <= 1%
2. When mounted on a 1*0.75*0.062 inch glass epoxy board.

2009-09

ELECTRICAL CHARACTERISTIC (2N7002TESGP)

Electrical Characteristics T_A = 25°C unless otherwise noted

Symbol	Parameter	Conditions	Min	Typ	Max	Units
OFF CHARACTERISTICS						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS} = 0 V, I_D = 10 µA	60			V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = 60 V, V_{GS} = 0 V			1	µA
		T_J=125°C			0.5	mA
I_{GSSF}	Gate - Body Leakage, Forward	V_{GS} = 20 V, V_{DS} = 0 V			10	uA
I_{GSSR}	Gate - Body Leakage, Reverse	V_{GS} = -20 V, V_{DS} = 0 V			-10	uA
ON CHARACTERISTICS (Note 1)						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = 250 µA	1.0	1.5	2.0	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance (Note 3)	V_{GS} = 5 V, I_D = 50 mA			7.5	Ω
		V_{GS} = 10 V, I_D = 500 mA			7.5	
g_{FS}	Forward Transconductance (Note 3)	V_{DS} = 10 V, I_D = 200 mA	80			mS
DYNAMIC CHARACTERISTICS						
C_{iss}	Input Capacitance	V_{DS} = 25 V, V_{GS} = 0 V, f = 1.0 MHz		25	50	pF
C_{oss}	Output Capacitance			10	25	
C_{rss}	Reverse Transfer Capacitance			3.0	5	
t_{on}	Turn-On Time (Note 3)	V_{DD} = 30 V, R_L = 150 Ω, I_D = 200 mA, V_{gen} = 10 V, R_{GEN} = 10 Ω		12	20	nS
t_r	Turn-Off Time (Note 3)			20	30	

Note:
3. Pulse Test: Pulse Width ≤ 300µs, Duty Cycle ≤ 1.0%.

RATING CHARACTERISTIC CURVES (2N7002TESGP)

Typical Electrical Characteristics

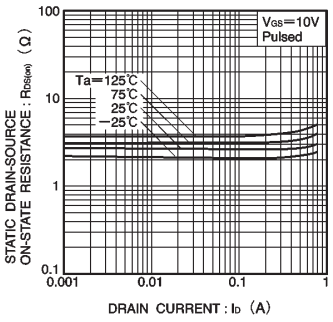


Fig.4 Static drain-source on-state resistance vs. drain current (Ⅰ)

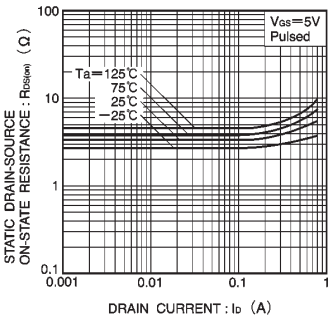


Fig.5 Static drain-source on-state resistance vs. drain current (Ⅱ)

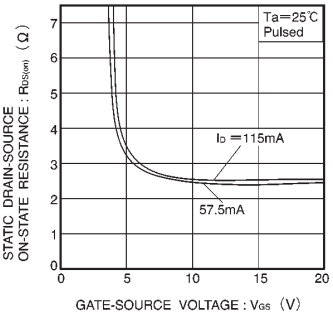


Fig.6 Static drain-source on-state resistance vs. gate-source voltage

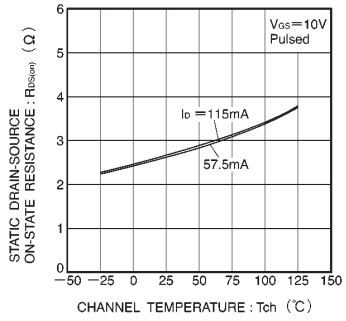


Fig.7 Static drain-source on-state resistance vs. channel temperature

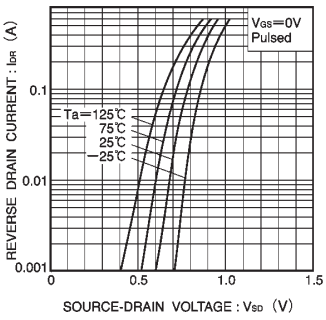


Fig.8 Reverse drain current vs. source-drain voltage (Ⅰ)

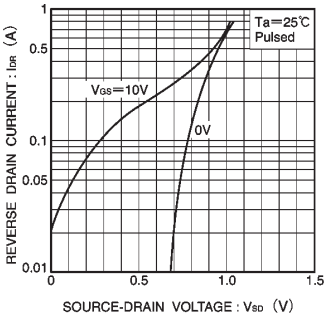


Fig.9 Reverse drain current vs. source-drain voltage (Ⅱ)

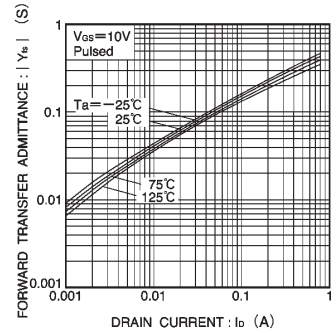


Fig.10 Forward transfer admittance vs. drain current

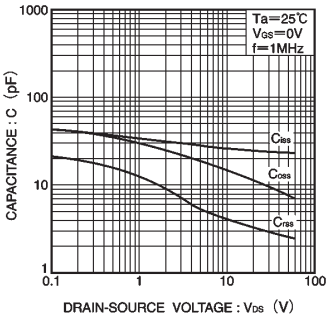


Fig.11 Typical capacitance vs. drain-source voltage

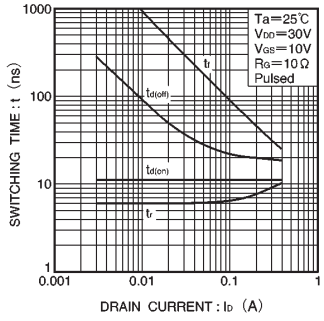


Fig.12 Switching characteristics
(See Figures 13 and 14 for the measurement circuit and resultant waveforms)