WEITRON

2N7002KT

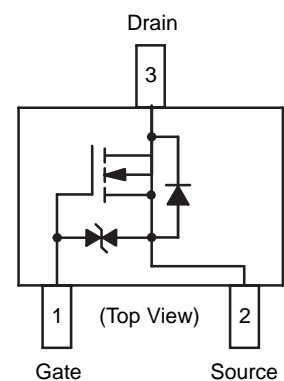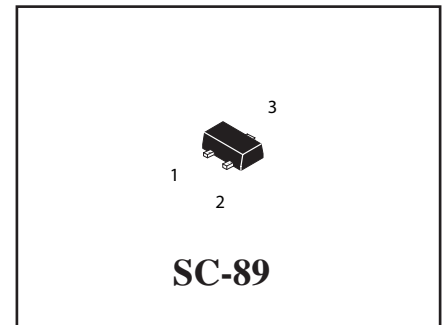## N-Channel ENHANCEMENT MODE POWER MOSFET

(P/b) **Lead(Pb)-Free**

SC-89

FEATURES:

* Gate-Source ESD Protected: 1500 V
* Fast Switching Speed
* Low On-Resistance
* Low Voltage Driver

APPLICATIONS:

* Drivers: Relays, Solenoids, Lamps, Hammers,Displays, Memories
* Battery Operated Systems
* Power Supply Converter Circuits
* Load/Power Switching Cell Phones, Pagers

Maximum Ratings (T$_A$=25°C unless otherwise specified)

Characteristic		Symbol	Values	Unit
Drain-Source Voltage		V$_{DSS}$	60	V
Gate-Source Voltage	Continuous	V$_{GSS}$	±20	V
Drain Current	Continuous	I$_D$	115	mA
	Pulsed	I$_{DP}$[1]	800	mA
Reverse drain current	Continuous	I$_D$	115	mA
	Pulsed	I$_{DRP}$[1]	800	mA
Total Power Dissipation		P$_D$[2]	225	mW
Junction temperature Range		T$_j$	150	°C
Storage Temperature Range		Tstg	-55 to +150	°C

Note 1. Pw ≤ 10μs, Duty cycle ≤ 1%
      2. When mounted on a 1 x 0.75 x 0.062 inch glass epoxy board

Device Marking

2N7002KT = RS

2N7002KT

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Electrical Characteristics (T_A=25°C unless otherwise specified,per element)

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS(Note2)					
Drain-Source Breakdown Voltage V_{GS}=0V, I_D=10µA	$V_{(BR)DSS}$	60	-	-	V
Zero Gate Voltage Drain Current V_{DS}=60V, V_{GS}=0V	I_{DSS}	-	-	1.0	µA
Gate-source Leakage V_{GS}=±20V, V_{DS}=0V	I_{GSS}	-	-	±10	µA

Characteristic	Symbol	Min	Typ	Max	Unit
ON CHARACTERISTICS(Note2)					
Gate Threshold Voltage V_{DS}=V_{GS}, I_D=250µA	$V_{GS(th)}$	1.0	1.5	2.0	V
Static Drain-Source On-Resistance V_{GS}=10V, I_D=0.5A V_{GS}=5V, I_D=0.05A	$R_{DS(ON)}$	-	-	7.5 7.5	Ω
Forward transfer admittance V_{DS}=10V, I_D=0.2A	gfs*	80	-	-	mS

DYNAMIC CHARACTERISTICS

Characteristic	Symbol	Min	Typ	Max	Unit
Input Capacitance V_{DS}=25V, V_{GS}=0V, f=1.0MHz	C_{iss}	-	25	50	pF
Output Capacitance V_{DS}=25V, V_{GS}=0V, f=1.0MHz	C_{oss}	-	10	25	
Reverse Transfer Capacitance V_{DS}=25V, V_{GS}=0V, f=1.0MHz	C_{rss}	-	3.0	5.0	

SWITCHING CHARACTERISTICS

Characteristic	Symbol	Min	Typ	Max	Unit
Turn-On Delay Time I_D=0.2A, V_{DD}=30V V_{GS}=10V, RL=150Ω, R_G=10Ω	$T_{D(ON)}$*	-	12	20	nS
Turn-Off Delay Time I_D=0.2A, V_{DD}=30V V_{GS}=10V, RL=150Ω, R_G=10Ω	$T_{D(OFF)}$*	-	20	30	

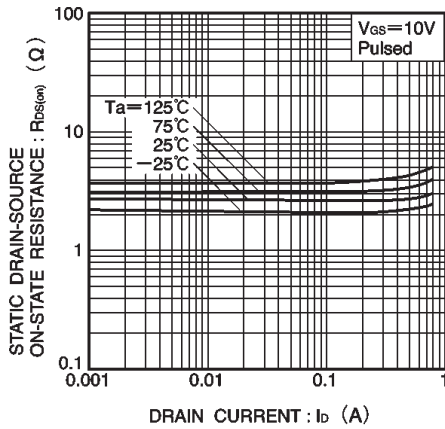*Pw ≤ 300µs, Duty cycle ≤ 1%

Characteristics Curve

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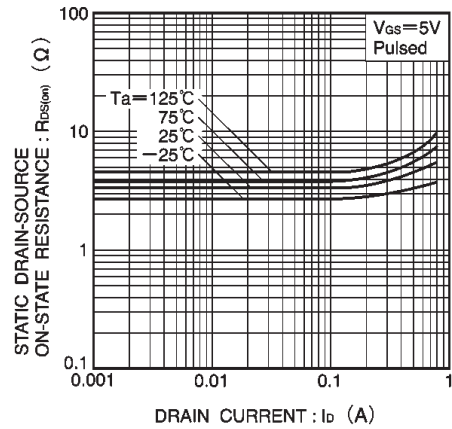

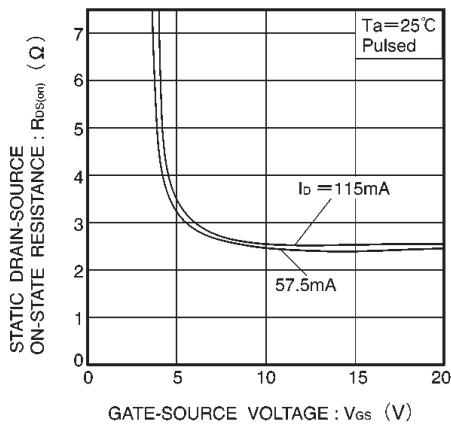Fig.5 Static drain-source on-state resistance vs. drain current (Ⅱ)

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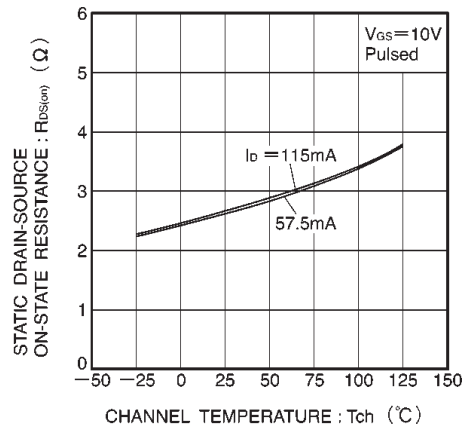

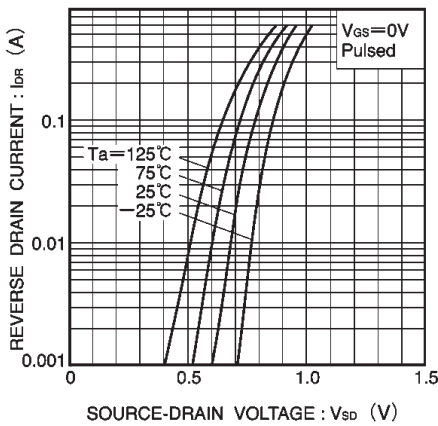Fig.7 Static drain-source on-state resistance vs. channel temperature

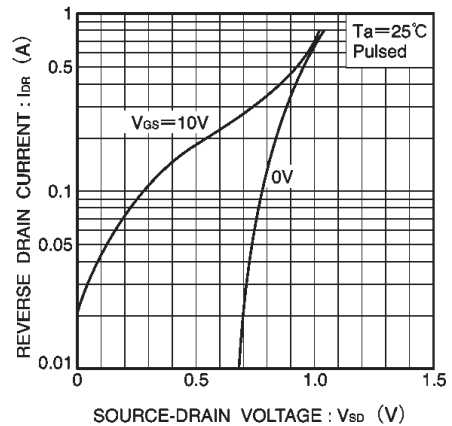Fig.8 Reverse drain current vs. source-drain voltage (Ⅰ)

Fig.9 Reverse drain current vs. source-drain voltage (Ⅱ)
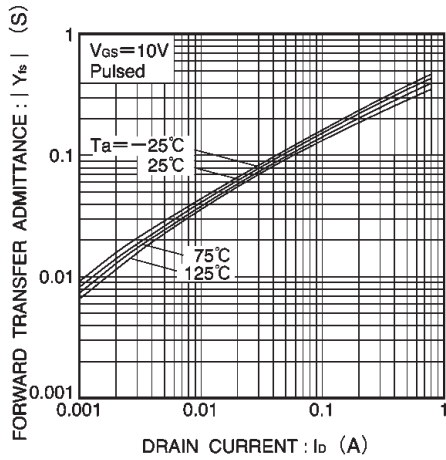
Characteristics Curve
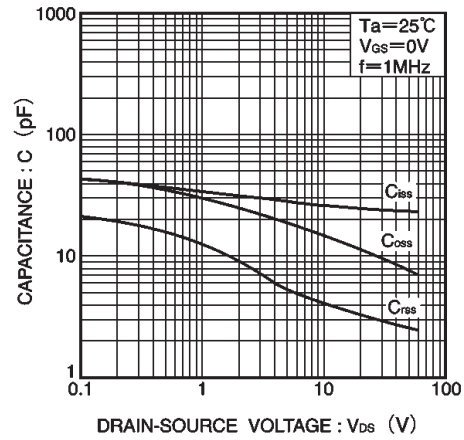
Fig.10 Forward transfer admittance
vs. drain current

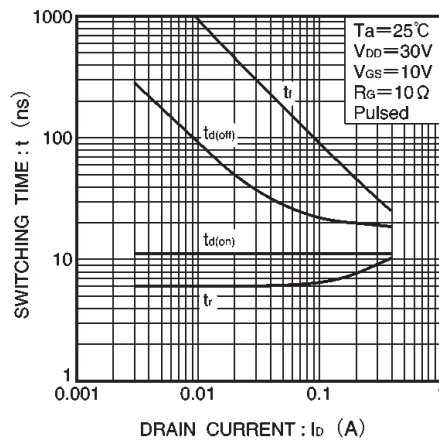Fig.11 Typical capacitance
vs. drain-source voltage

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

SC-89 Outline Demensions

Unit:mm

SC-89			
Dim	Min	Nom	Max
A	1.50	1.60	1.70
B	0.75	0.85	0.95
C	0.60	0.70	0.80
D	0.23	0.28	0.33
G	0.50BSC		
J	0.10	0.15	0.20
K	0.30	0.40	0.50
M	---	---	10°
N	---	---	10°
S	1.50	1.60	1.70