



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



TO-92



Pin Definition:

1. Source
2. Gate
3. Drain

PRODUCT SUMMARY

V_{DS} (V)	$R_{DS(on)}$ (Ω)	I_D (mA)
60	5 @ $V_{GS} = 10V$	100
	5.5 @ $V_{GS} = 5V$	100

Features

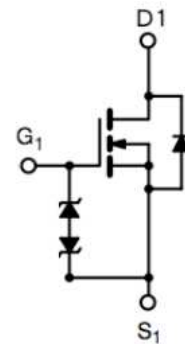
- Low On-Resistance
- ESD Protection
- High Speed Switching
- Low Voltage Drive

Ordering Information

Part No.	Package	Packing
TSM2N7000KCT B0G	TO-92	1Kpcs / Bulk
TSM2N7000KCT A3G	TO-92	2Kpcs / Ammo

Note: "G" denotes for Halogen Free

Block Diagram



N-Channel MOSFET

Absolute Maximum Rating ($T_A = 25^\circ C$ unless otherwise noted)

Parameter	Symbol	Limit	Unit	
Drain-Source Voltage	V_{DS}	60	V	
Gate-Source Voltage	V_{GS}	± 20	V	
Drain Current	Continuous @ $T_A=25^\circ C$	I_D	300	mA
	Pulsed	I_{DM}	700	
Drain Reverse Current	Continuous @ $T_A=25^\circ C$	I_{DR}	300	mA
	Pulsed	I_{DMR}	700	
Maximum Power Dissipation	P_D	400	mW	
Operating Junction Temperature	T_J	+150	$^\circ C$	
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ C$	

Thermal Performance

Parameter	Symbol	Limit	Unit
Lead Temperature (1/8" from case)	T_L	10	S
Junction to Ambient Thermal Resistance (PCB mounted)	$R\theta_{JA}$	357	$^\circ C/W$

Notes:

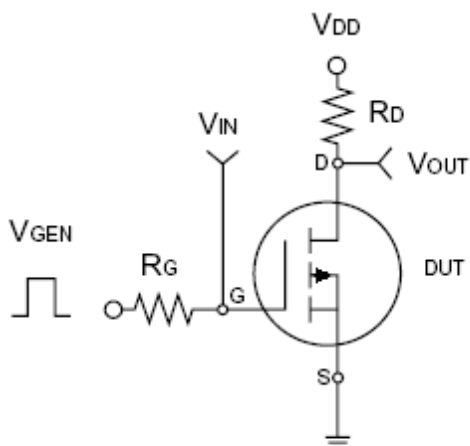
- a. Pulse width limited by the Maximum junction temperature
- b. Surface Mounted on FR4 Board, $t \leq 5$ sec.

Electrical Specifications (Ta = 25°C, unless otherwise noted)

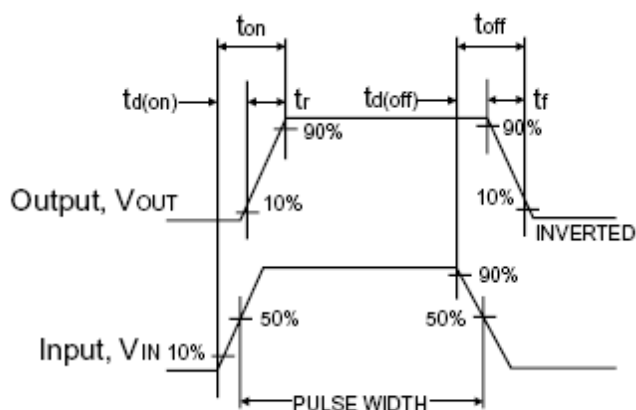
Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	$V_{GS} = 0V, I_D = 10\mu A$	BV_{DSS}	60	--	--	V
Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\mu A$	$V_{GS(TH)}$	1.0	--	2.5	V
Gate Body Leakage	$V_{GS} = \pm 20V, V_{DS} = 0V$	I_{GSS}	--	--	± 10	μA
Zero Gate Voltage Drain Current	$V_{DS} = 60V, V_{GS} = 0V$	I_{DSS}	--	--	1.0	μA
Drain-Source On-State Resistance	$V_{GS} = 10V, I_D = 100mA$	$R_{DS(ON)}$	--	3	5	Ω
	$V_{GS} = 5V, I_D = 100mA$		--	3.6	5.5	
Forward Transconductance	$V_{DS} = 10V, I_D = 200mA$	g_{fs}	100	--	--	mS
Diode Forward Voltage	$I_S = 300mA, V_{GS} = 0V$	V_{SD}	--	0.9	1.2	V
Dynamic^b						
Total Gate Charge	$V_{DS} = 10V, I_D = 250mA,$ $V_{GS} = 4.5V$	Q_g	--	0.4	--	nC
Input Capacitance	$V_{DS} = 25V, V_{GS} = 0V,$ $f = 1.0MHz$	C_{iss}	--	7.32	--	pF
Output Capacitance		C_{oss}	--	3.42	--	
Reverse Transfer Capacitance		C_{rss}	--	7.63	--	
Switching^c						
Turn-On Delay Time	$V_{DD} = 30V, R_G = 10\Omega$	$t_{d(on)}$	--	25	--	nS
Turn-Off Delay Time	$I_D = 100mA, V_{GEN} = 10V,$	$t_{d(off)}$	--	35	--	

Notes:

- a. pulse test: $PW \leq 300\mu S$, duty cycle $\leq 2\%$
- b. For DESIGN AID ONLY, not subject to production testing.
- b. Switching time is essentially independent of operating temperature.



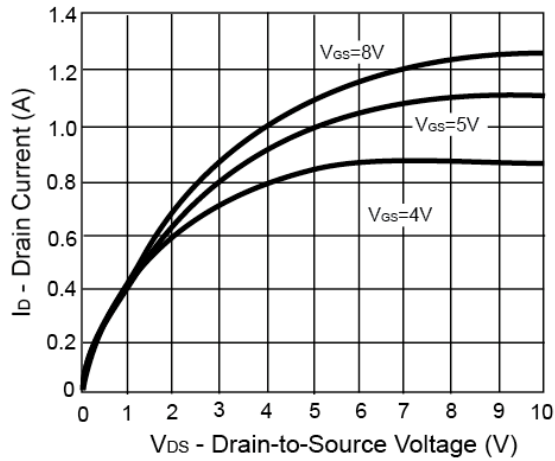
Switching Test Circuit



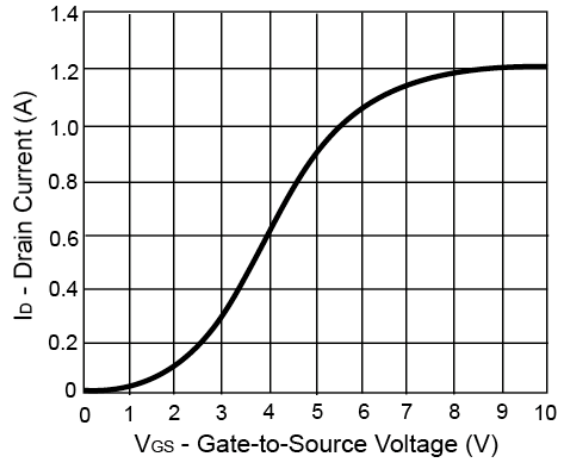
Switchin Waveforms

Electrical Characteristics Curve (Ta = 25°C, unless otherwise noted)

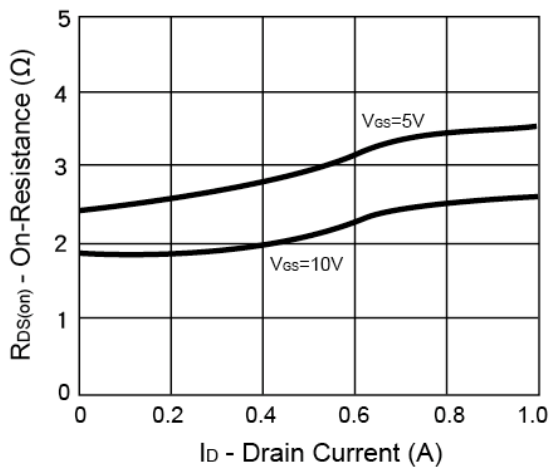
Output Characteristics



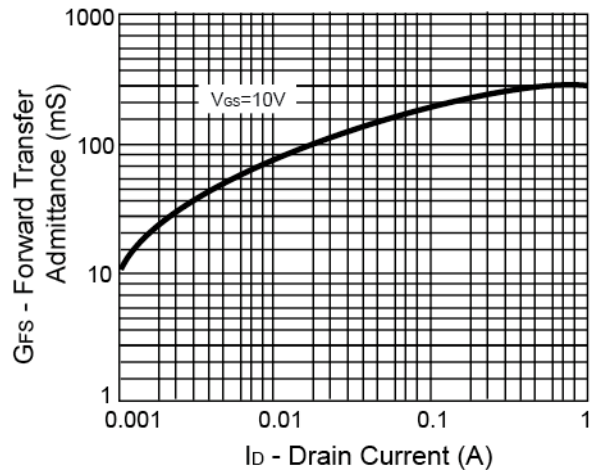
Transfer Characteristics



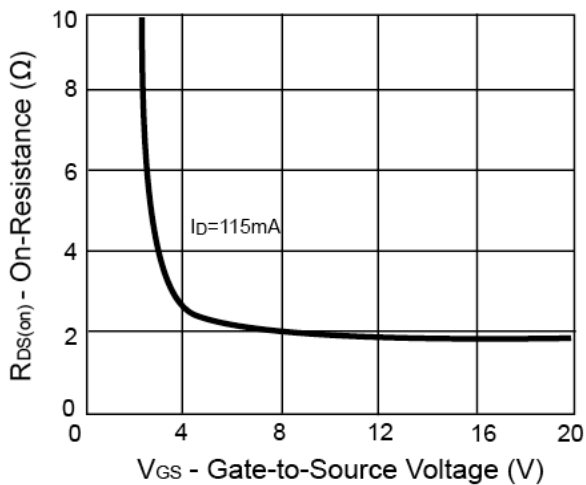
On-Resistance vs. Drain Current



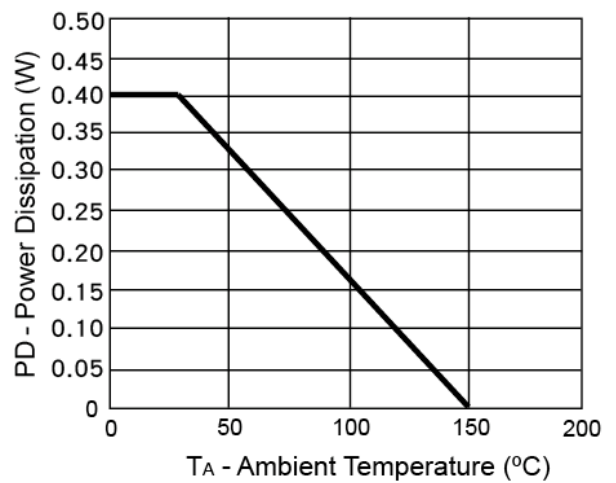
Forward Transfer Admittance vs. Drain Current



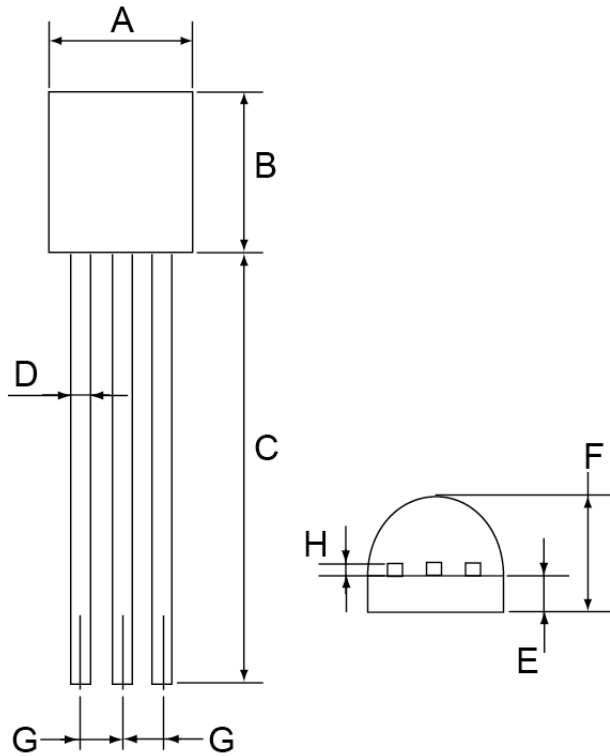
On-Resistance vs. Gate-Source Voltage



Power Derating Curve

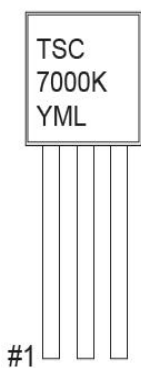


TO-92 Mechanical Drawing



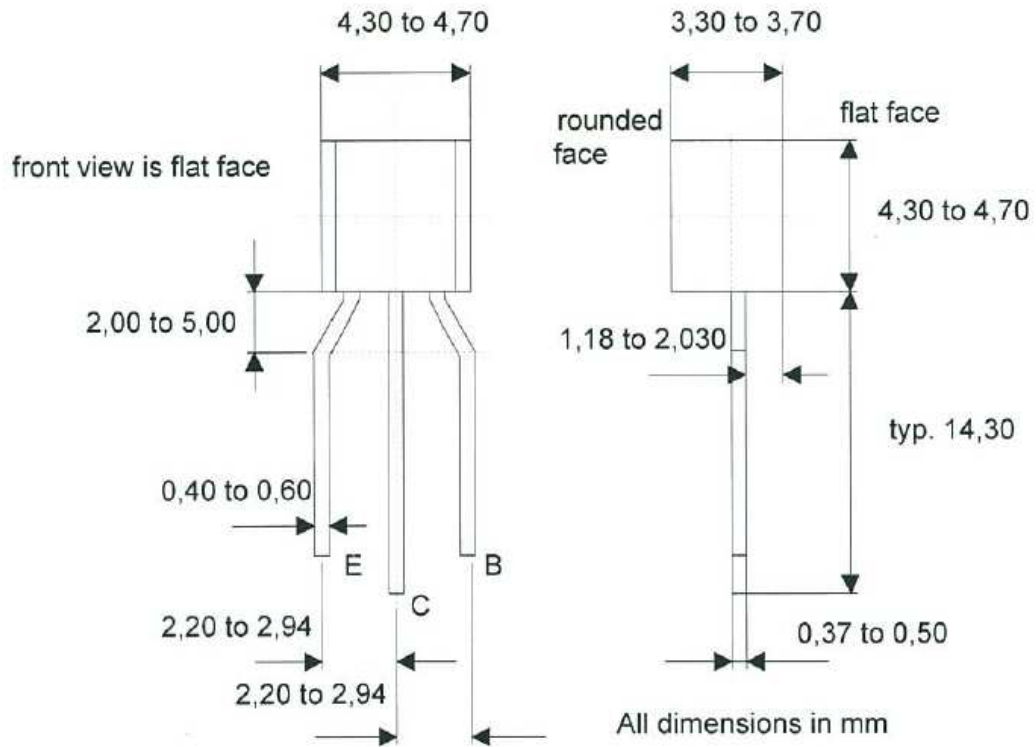
TO-92 DIMENSION				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.30	4.70	0.169	0.185
B	4.30	4.70	0.169	0.185
C	13.53 (typ)		0.532 (typ)	
D	0.39	0.49	0.015	0.019
E	1.18	1.28	0.046	0.050
F	3.30	3.70	0.130	0.146
G	1.27	1.31	0.050	0.051
H	0.33	0.43	0.013	0.017

Marking Diagram



- Y** = Year Code
- M** = Month Code for Halogen Free Product
 - O** =Jan **P** =Feb **Q** =Mar **R** =Apr
 - S** =May **T** =Jun **U** =Jul **V** =Aug
 - W** =Sep **X** =Oct **Y** =Nov **Z** =Dec
- L** = Lot Code

TO-92 Ammo Pack Mechanical Drawing



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