

### Features

- Low Gate Threshold Voltage
- Low Input Capacitance
- Low On-Resistance
- ESD protected Gate HBM 2.5KV
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

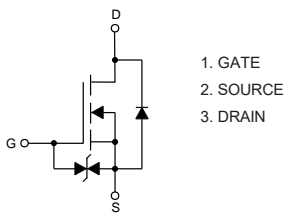
### Maximum Ratings

- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature: -55°C to +150°C
- Thermal Resistance: 833°C/W Junction to Ambient

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	60	V
Gate-Source Voltage	$V_{GS}$	Continuous	$\pm 20$
		Pulsed	$\pm 40$
Drain-Gate Voltage	$R_{GS} \leq 1.0M\Omega$	60V	V
Drain Current <sup>(1)</sup>	$I_D$	Continuous	0.115
		Continuous@100°C	0.073
		Pulsed	0.80
Power Dissipation <sup>(1)</sup>	$P_D$	0.15	W

Note: 1. Valid Provided That Terminals are Kept at Specified Ambient Temperature.

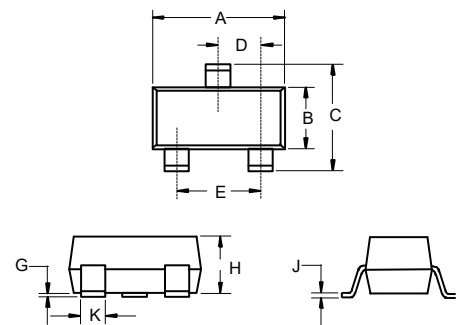
### Internal Structure



Marking Code:72K

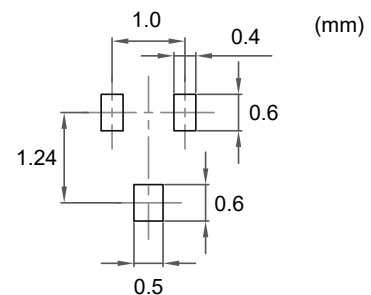
## N-Channel MOSFET

### SOT-523



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.059	0.067	1.50	1.70	
B	0.030	0.033	0.75	0.85	
C	0.057	0.069	1.45	1.75	
D	0.020		0.50		TYP.
E	0.035	0.043	0.90	1.10	
G	0.000	0.004	0.00	0.10	
H	0.024	0.031	0.60	0.80	
J	0.004	0.008	0.10	0.20	
K	0.006	0.014	0.15	0.35	

### Suggested Solder Pad Layout



**Electrical Characteristics @ 25°C (Unless Otherwise Specified)**

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=10\mu A$	60			V
Gate-Source Leakage Current	$I_{GSS}$	$V_{DS}=0V, V_{GS}=\pm 20V$			$\pm 10$	$\mu A$
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=60V, V_{GS}=0V$			1	$\mu A$
		$V_{DS}=60V, V_{GS}=0V, T_C=125^\circ C$			500	$\mu A$
Gate-Threshold Voltage <sup>(2)</sup>	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1		2	V
On-State Drain Current	$I_{D(on)}$	$V_{DS}=7.5V, V_{GS}=10V$	500	1000		mA
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=500mA$		4.4	13.5	$\Omega$
		$V_{GS}=5V, I_D=50mA$		2	7.5	$\Omega$
Forward Transconductance	$g_{fs}$	$V_{DS}=10V, I_D=200mA$	80			ms
Diode Forward Current	$I_S$				0.34	A
Reverse Recovery Time	$t_{rr}$	$I_S=300mA, di/dt=-100A/ms,$ $V_{DS}=25V, V_{GS}=0V$		30		ns
Reverse Recovery Charge	$Q_{rr}$			30		nC
Input Capacitance	$C_{iss}$	$V_{DS}=25V, V_{GS}=0V, f=1MHz$		22	50	pF
Output Capacitance	$C_{oss}$			11	25	
Reverse Transfer Capacitance	$C_{rss}$			2	5	
Total Gate Charge	$Q_g$	$V_{DS}=10V, V_{GS}=4.5V, I_D=250mA$		0.3		nC
Gate-Source Charge	$Q_{gs}$			0.2		
Gate-Drain Charge	$Q_{gd}$			0.08		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=30V, V_{GEN}=10V,$ $R_G=25\Omega, R_L=150\Omega, I_D=200mA$		7	20	ns
Turn-Off Delay Time	$t_{d(off)}$			11	20	

Note: 1. Valid Provided That Terminals are Kept at Specified Ambient Temperature.

2. Pulse Test: Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2\%$ .

Curve Characteristics

Fig. 1 - Output Characteristics

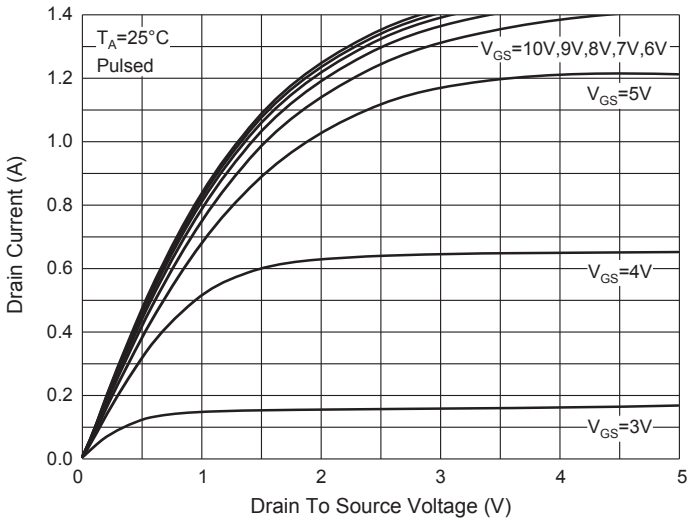


Fig. 2 - Transfer Characteristics

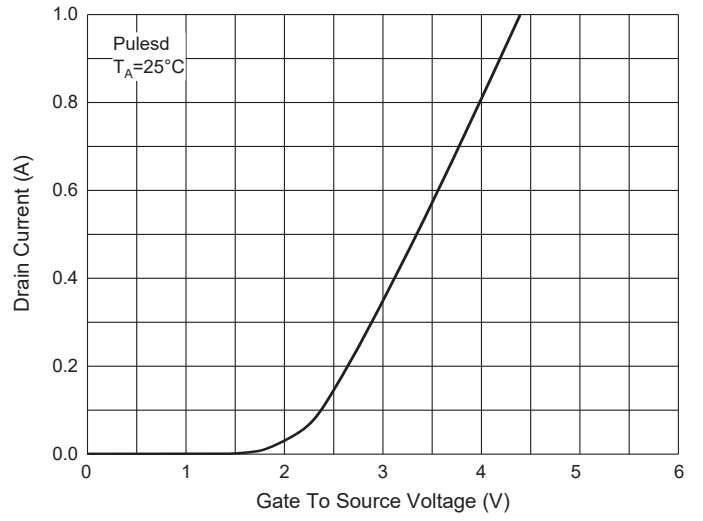


Fig. 3 -  $R_{DS(ON)} - I_D$

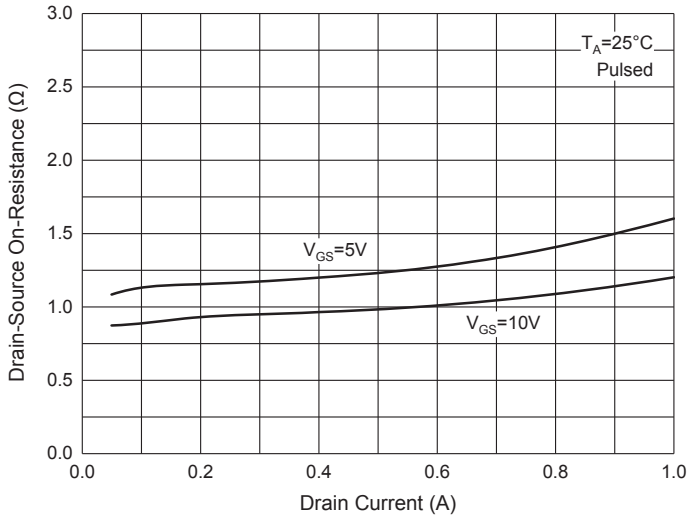


Fig. 3 -  $R_{DS(ON)} - V_{GS}$

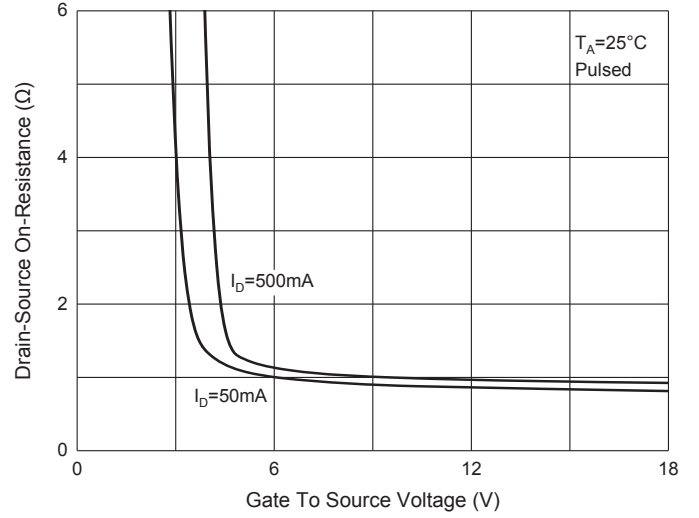
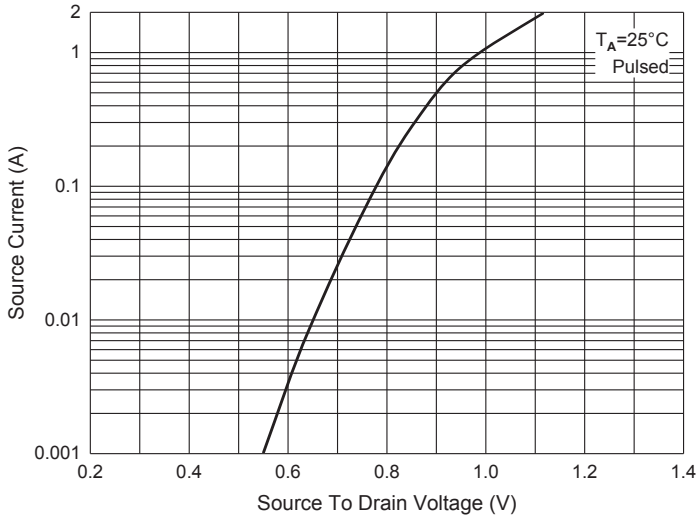


Fig. 5 -  $I_S - V_{SD}$



## Ordering Information

Device	Packing
Part Number-TP	Tape&Reel:3Kpcs/Reel

Note : Adding "-HF" Suffix For Halogen Free, eg. Part Number-TP-HF

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