

## 60V/0.3A N-Channel MOSFET

### Features

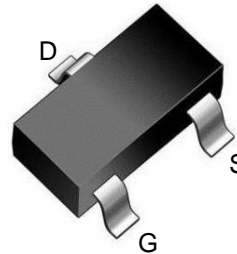
- Trench Power MV MOSFET technology
- Voltage controlled small signal switch
- Low input Capacitance
- Fast Switching Speed
- Low Input / Output Leakage

### Application

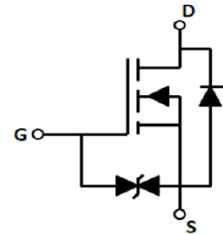
- Battery operated systems
- Solid-state relays

### Product Summary

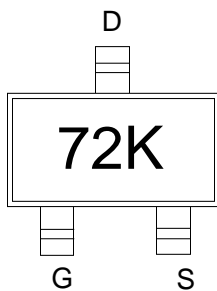
$V_{DS}$	$R_{DS(ON)} MAX$	$I_D MAX$
60V	3.5Ω@10V	0.3A
	4.5Ω@4.5V	



SOT-23 top view



Schematic diagram



72K: Device code

Marking and pin assignment

### Absolute Maximum Ratings (TA=25°C unless otherwise noted)

Symbol	Parameter	Rating	Unit
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### Common Ratings (TC=25°C Unless Otherwise Noted)

$V_{DS}$	Drain-Source Breakdown Voltage	60	V
$V_{GS}$	Gate-Source Voltage	±20	V
$T_J$	Maximum Junction Temperature	150	°C
$T_{STG}$	Storage Temperature Range	-50 to 155	°C
$I_S$	Diode Continuous Forward Current	$T_C=25^\circ C$ 0.3	A

### Mounted on Large Heat Sink

$I_{DM}$	Pulse Drain Current Tested	$T_C=25^\circ C$ 1.2	A
$I_D$	Continuous Drain Current@GS=10V	$T_C=25^\circ C$ 0.3	A
$P_D$	Maximum Power Dissipation	$T_C=25^\circ C$ 0.35	W
$R_{\theta JA}$	Thermal Resistance Junction-to-Ambient @ Steady State	357	°C/W

<b>Electrical Characteristics (T<sub>J</sub>=25°C unless otherwise noted)</b>						
<b>Symbol</b>	<b>Parameter</b>	<b>Condition</b>	<b>Min</b>	<b>Typ</b>	<b>Max</b>	<b>Unit</b>
<b>Static Electrical Characteristics @ T<sub>J</sub> = 25°C (unless otherwise stated)</b>						
BV <sub>(BR)DSS</sub>	Drain-Source Breakdown Voltage	VGS=0V, ID=250μA	60	--	--	V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	VDS=60V, VGS=0V	--	--	1	μA
I <sub>GSS</sub>	Gate-Body Leakage Current	VGS=±20V, VDS=0V	--	--	±10	μA
V <sub>GS(th)</sub>	Gate Threshold Voltage	VDS=VGS, ID=250μA	0.8	1.5	3	V
R <sub>DS(on)</sub>	Drain-Source On-State Resistance	VGS=10V, ID=0.3A	--	2	3.5	Ω
		VGS=4.5V, ID=0.2A	--	3	4.5	
<b>Dynamic Electrical Characteristics @ T<sub>J</sub> = 25°C (unless otherwise stated)</b>						
C <sub>ISS</sub>	Input Capacitance	VDS=60V, VGS=0V, f=1MHz	--	18	--	pF
C <sub>OSS</sub>	Output Capacitance		--	12	--	pF
C <sub>RSS</sub>	Reverse Transfer Capacitance		--	7	--	pF
<b>Switching Characteristics</b>						
Q <sub>g</sub>	Total Gate Charge	VDS=60V, ID=0.3A, VGS=10V	--	1.7	--	nC
t <sub>d(on)</sub>	Turn-on Delay Time	VDD=30V, ID=0.2A, VGS=4.5V, RG=10Ω	--	4.8	--	nS
t <sub>d(off)</sub>	Turn-Off Delay Time		--	18	--	nS
t <sub>rr</sub>	Reverse recovery Time	VGS=0V, IS=300mA, VR=25V, di <sub>s</sub> /dt=-100A/μs	--	31	--	nS
<b>Source- Drain Diode Characteristics</b>						
V <sub>SD</sub>	Forward on voltage	T <sub>J</sub> =25°C, I <sub>S</sub> =0.1A,	--	--	1.2	V

## Typical Operating Characteristics

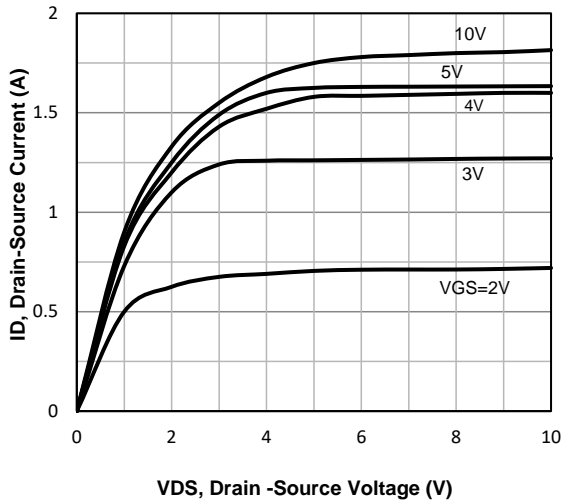


Fig1. Typical Output Characteristics

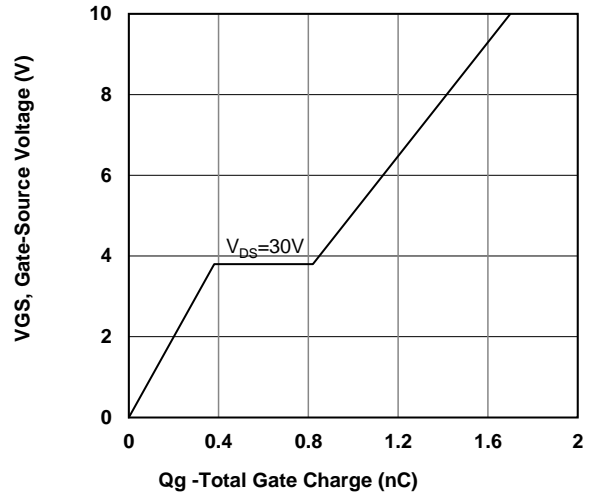


Fig2. Typical Gate Charge Vs. Gate-Source Voltage

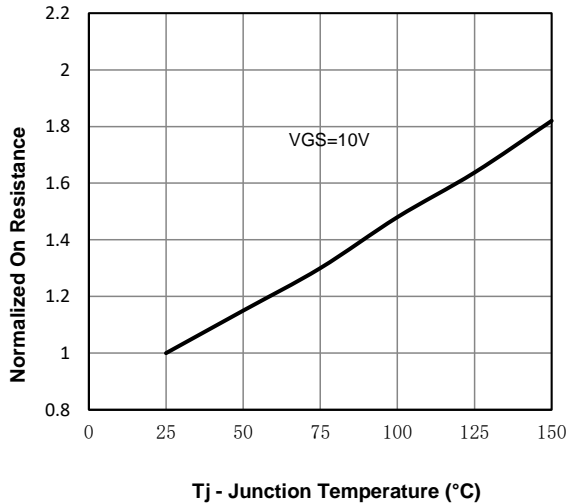


Fig3. Normalized On-Resistance Vs. Temperature

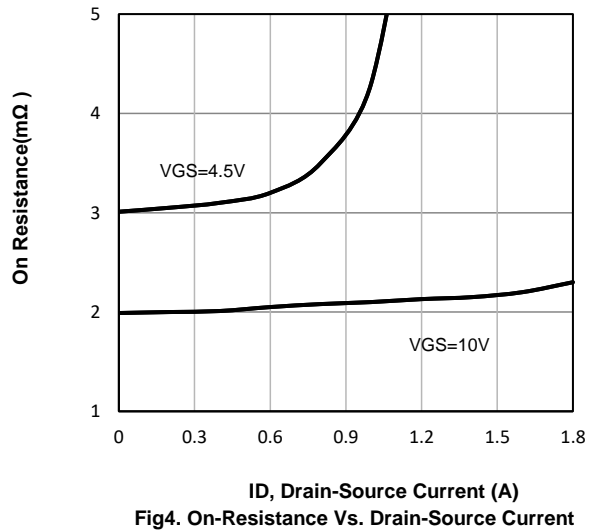


Fig4. On-Resistance Vs. Drain-Source Current

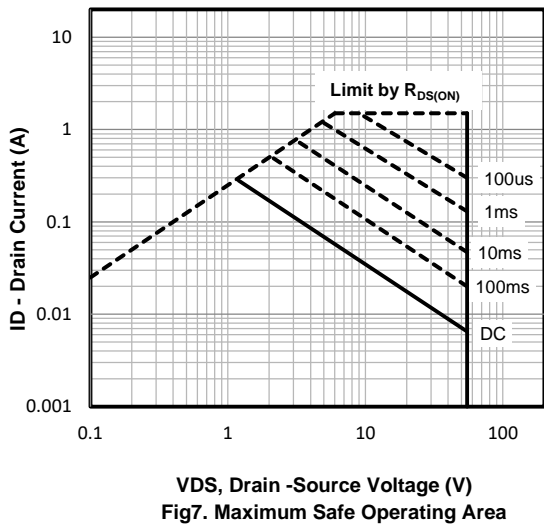


Fig7. Maximum Safe Operating Area

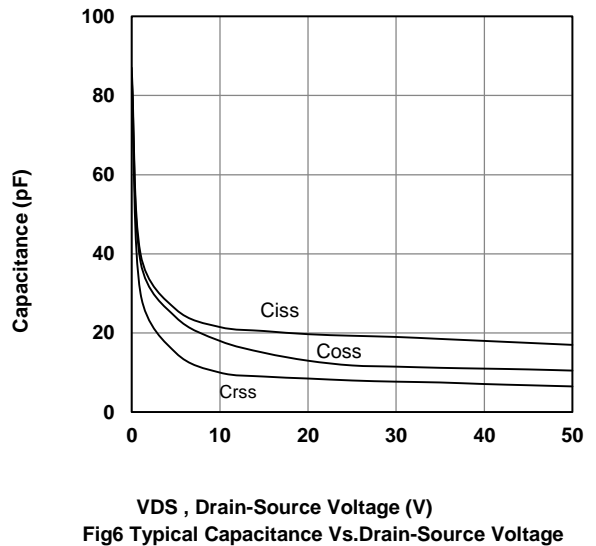
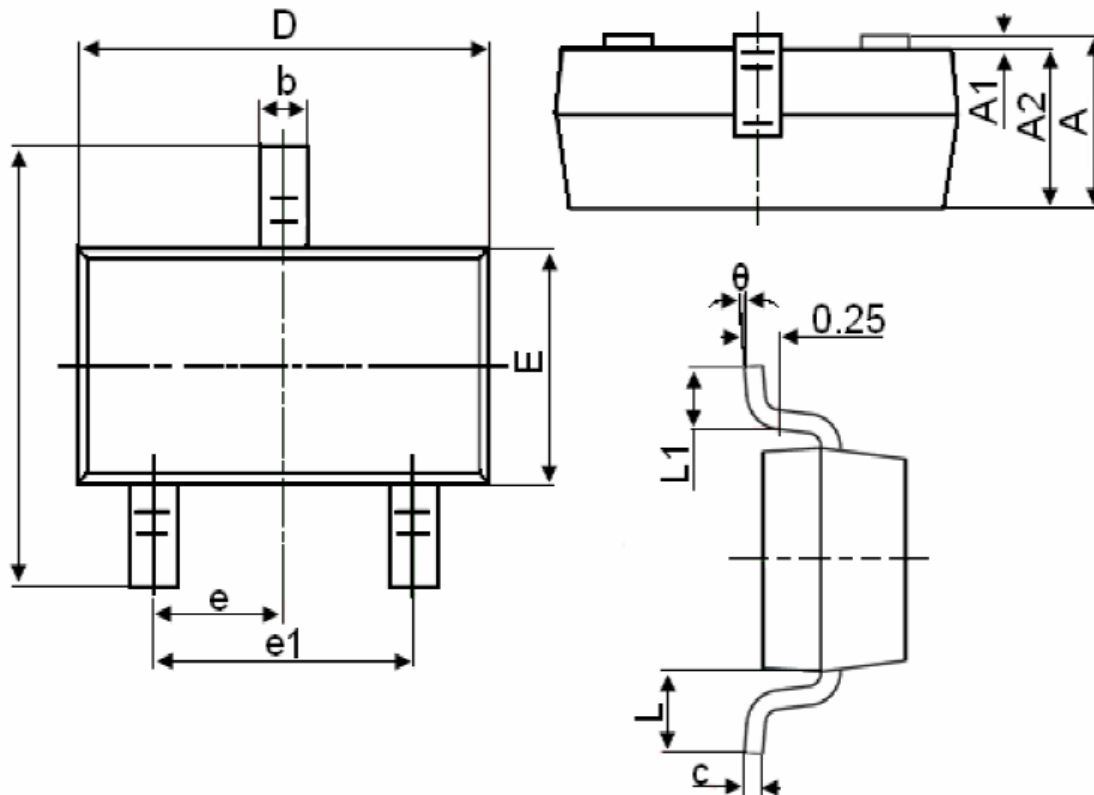


Fig6 Typical Capacitance Vs. Drain-Source Voltage

**SOT-23 Package information**


Symbol	Dimensions in Millimeters(mm)		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.550REF		0.022REF	
L1	0.300	0.500	0.012	0.020
$\theta$	0° to 8°		0° to 8°	