



**2N7002AK**  
**0.3A 60V N-CHANNEL MOSFET**

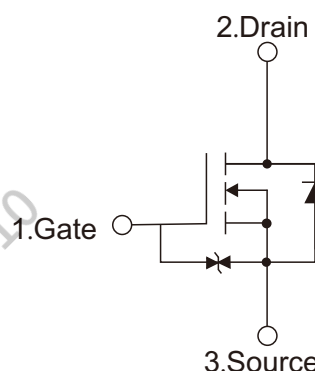
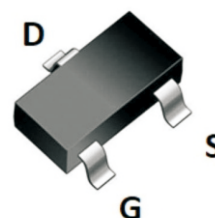
**Features**

- Fast Switching Capability
- Avalanche Energy Tested
- Low On Resistance
- Low Input Capacitance
- Small Surface Mount Package

**Applications**

- Motor Control
- Power Management Functions

SOT-23



**Absolute Maximum Ratings (TA=25°C, unless otherwise specified)**

Parameter	Symbols	Ratings	Units
Drain-Source Voltage	$V_{DSS}$	60	V
Gate-Source Voltage	$V_{GSS}$	$\pm 20$	V
Continuous Drain Current	$I_D$	0.3	A
Operation Junction Temperature And Storage Temperature	$T_j, T_{stg}$	-55 ~ +150	$^{\circ}C$

Parameter	Symbols	Test Conditions	Min	Typ	Max	Units
<b>Off Characteristics</b>						
Drain-Source Breakdown Voltage	$B_{VDSS}$	$V_{GS} = 0V, I_D = 10\mu A$	60			V
Drain-Source Leakage Current	$I_{DSS}$	$V_{DS} = 60V, V_{GS} = 0V$			1	$\mu A$
Gate- Source Leakage Current	$I_{GSS}$	$V_{GS} = 20V, V_{DS} = 0V$			10	$\mu A$
		$V_{GS} = -20V, V_{DS} = 0V$			-10	
<b>On Characteristics</b>						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.0	1.5	2.5	V
Static Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 0.3A$		1.6	2.5	$\Omega$
		$V_{GS} = 4.5V, I_D = 0.2A$		1.9	3.0	$\Omega$
HBM	ESD	$V_{DS} = 10V, I_D = 0.115A$	2.0			KV



### Dynamic Characteristics

Input Capacitance	$C_{ISS}$	$V_{DS} = 25V,$ $V_{GS} = 0V,$ $f = 1.0MHz$	23	pF
Output Capacitance	$C_{OSS}$		3.4	pF
Reverse Transfer Capacitance	$C_{RSS}$		1.4	pF
<b>Switching Characteristics</b>				
Turn-On Delay Time	$t_{D(ON)}$	$V_{DD} = 30V, I_D = 3A, R_L = 150\Omega$ $V_{GEN} = 10, R_{GEN} = 25\Omega$	10	ns
Turn-Off Delay Time	$t_{D(OFF)}$		33	ns

### Typical Characteristics

Fig.1 Typical Output Characteristic

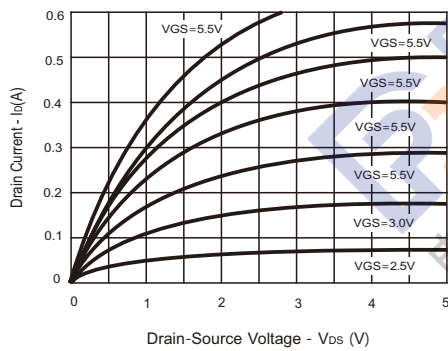


Fig.2 Typical Transfer Characteristics

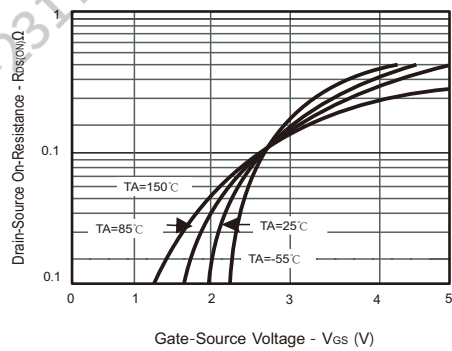


Fig.3 On-Resistance vs. Drain Current & Gate Voltage

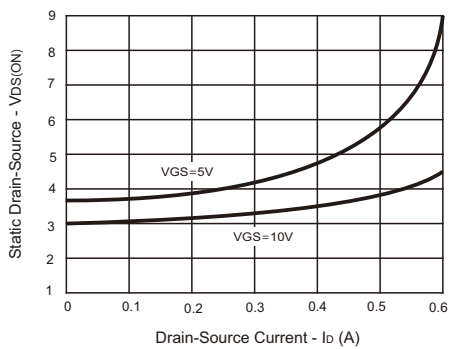


Fig.4 Normalized Static Drain-Source On-Resistance

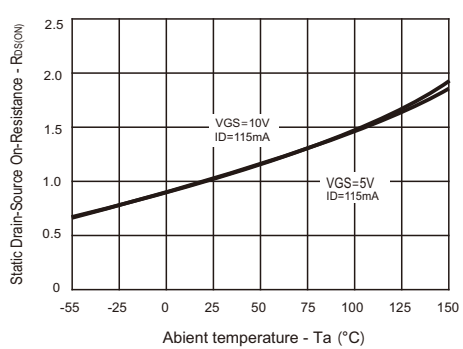




Fig.5 Gate Threshold Variation vs.Ambient Temperature

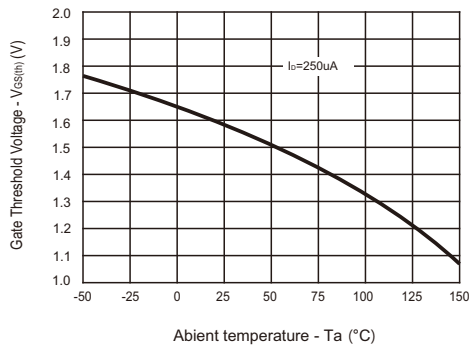


Fig.6 Typical Total Capacitance

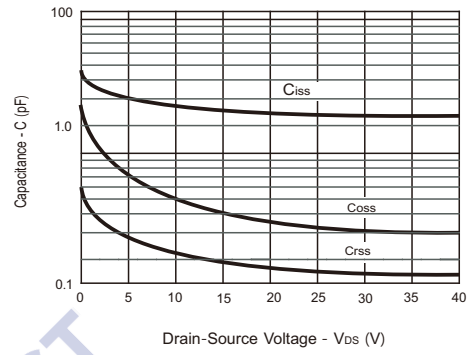
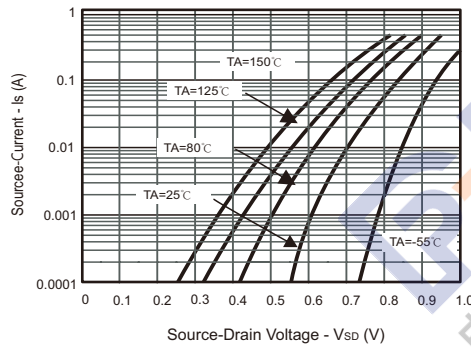


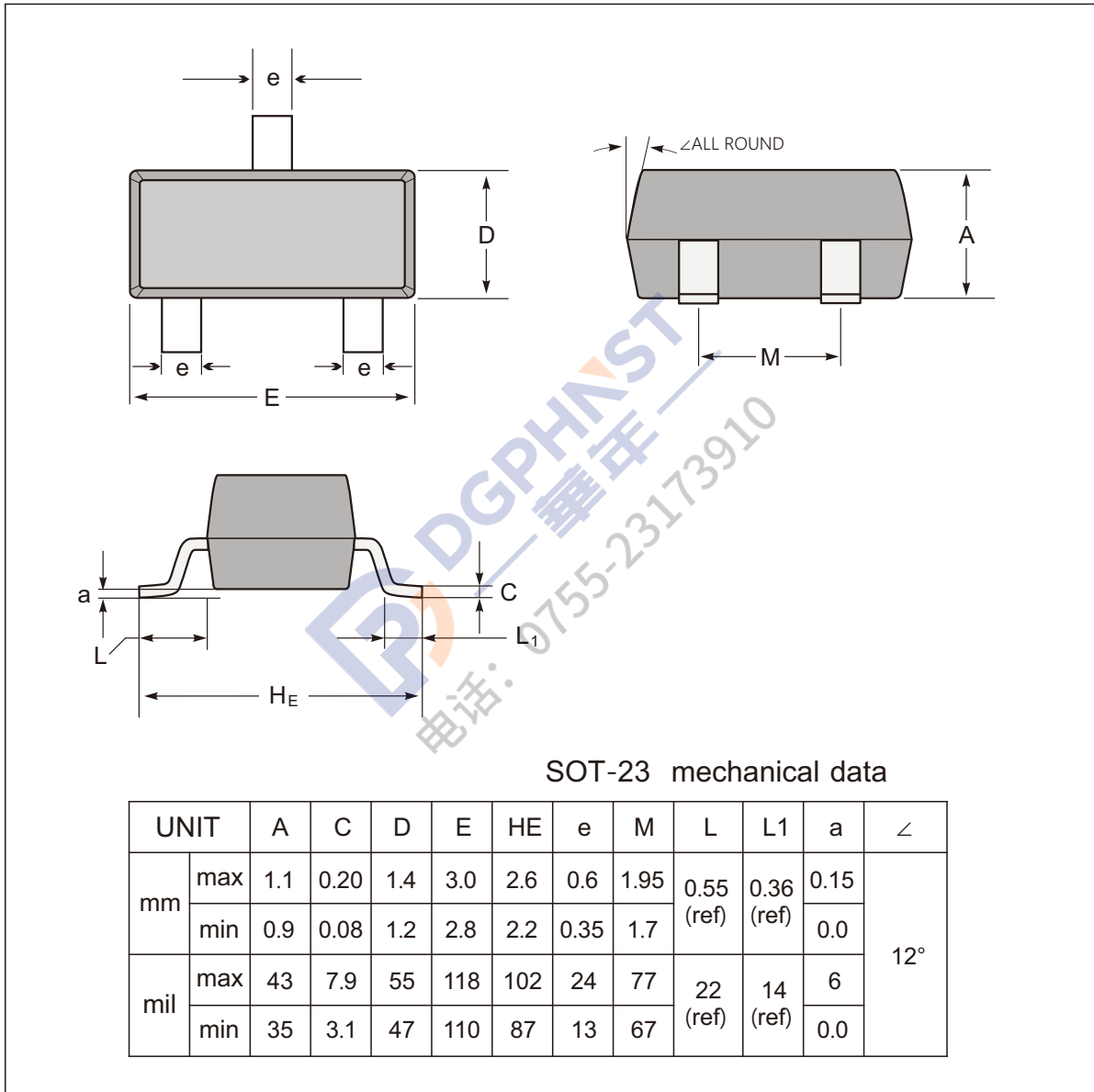
Fig.7 Reverse Dain Current vs.Source-Drain Voltage



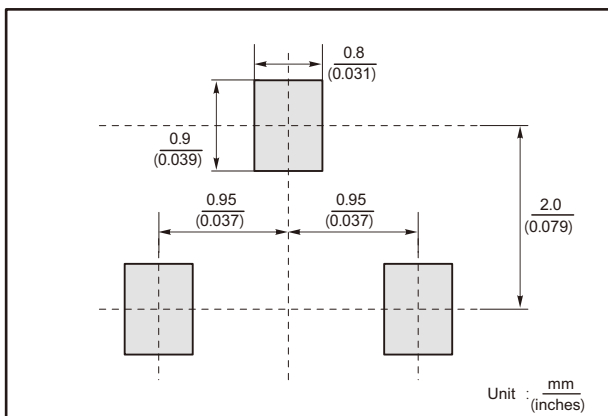
DGPHNST  
— 華年 —  
电话: 0755-23173910



### SOT-23 Package Outline Dimensions



#### The recommended mounting pad size



#### Marking

Type number	Marking code
2N7002AK	72AK



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