

60V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

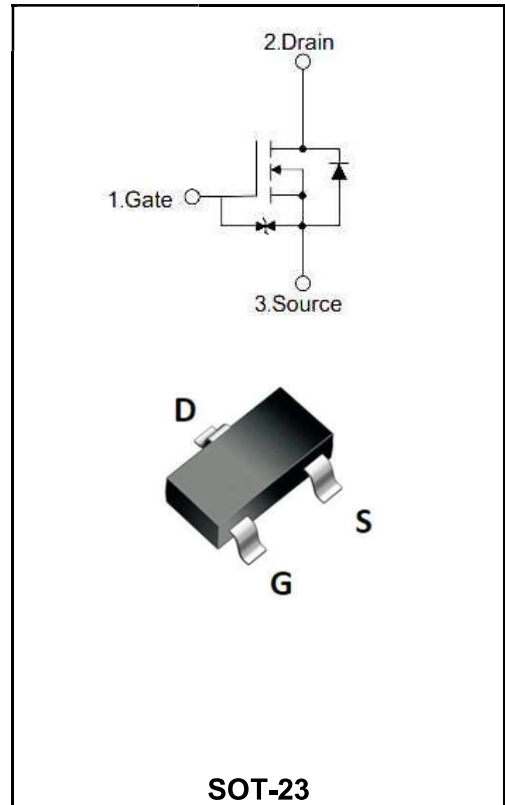
I_D	0.3A
V_{DSS}	60V
R_{DS(on)-typ(@V_{GS}=10V)}	< 2.5Ω (Type:1.6 Ω)

Features

◆ESD Rating HBM 2000V

APPLICATION

- ◆Motor Control
- ◆Power Management Functions
- ◆Molded Plastic: UL Flammability Classification Rating 94V-0



PRODUCT SPECIFICATION CLASSIFICATION

Part Number	Package	Marking	Pack
2N7002AK	SOT-23	NJ	3000PCS/Tape

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	60	V
Gate - Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	0.3	A
Operation Junction Temperature and Storage Temperature	T_J, T_{STG}	-55 to +150	°C

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics		Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage		$V_{GS}=0V, I_D=10\mu A$	BV_{DSS}	60	-	-	V
Drain-Source Leakage Current		$V_{DS}=60V, V_{GS}=0V$	I_{DSS}	-	-	1	μA
Gate-Source Leakage Current	Forward	$V_{GS}=20V, V_{DS}=0V$	I_{GSS}	-	-	10	μA
	Reverse	$V_{GS}=-20V, V_{DS}=0V$		-	-	-10	
Gate -Threshold Voltage		$V_{DS}=V_{GS}, I_D=250\mu A$	$V_{GS(th)}$	1.0	1.5	2.5	V
Static Drain-Source On-State Resistance		$V_{GS}=10V, I_D=0.3A$	$R_{DS(on)}$	-	1.6	2.5	Ω
		$V_{GS}=4.5V, I_D=0.2A$		-	1.9	3.0	
HBM			ESD	2	-	-	KV
Input Capacitance	$V_{DS}=25V$ $V_{GS}=0V$ $f=1.0MHz$		C_{iss}	-	23	-	μF
Output Capacitance			C_{oss}	-	3.4	-	
Reverse Transfer Capacitance			C_{rss}	-	1.4	-	
Turn-on delay time	$V_{DD}=30V, I_D=0.115A$ $R_L=150\Omega,$ $V_{GEN}=10, R_{GEN}=25\Omega$		$t_{d(on)}$	-	10	-	ns
Turn-Off Delay Time			$t_{d(OFF)}$	-	33	-	

Notes:

1.Device mounted on FR-4 PCB With minimum recommended pad layout

Typical Characteristics

Fig.1 Typical Output Characteristic

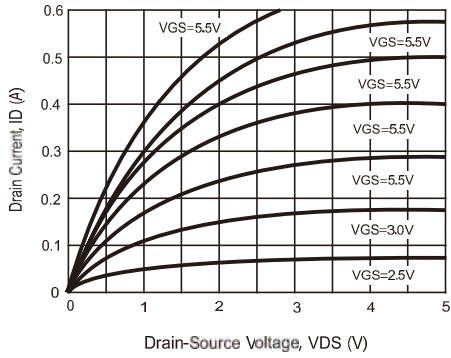


Fig.2 Typical Transfer Characteristics

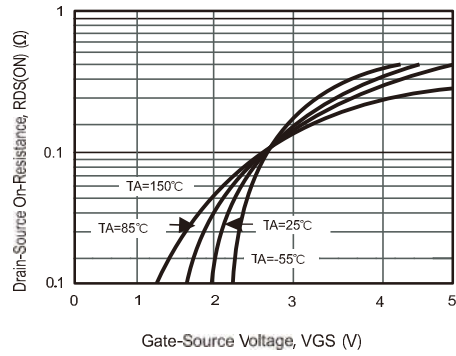


Fig.3 On-Resistance vs. Drain Current & Gate Voltage

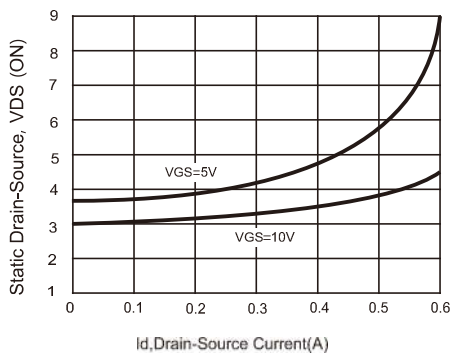
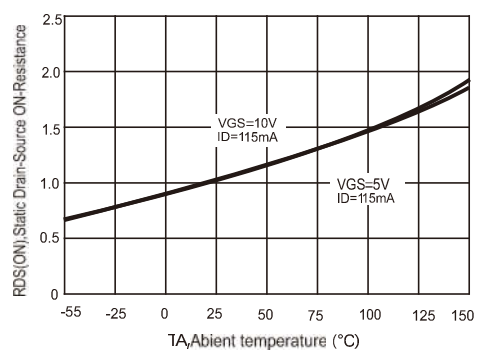


Fig.4 Normalized Static Drain-Source On-Resistance



RATINGS AND CHARACTERISTIC CURVES

Fig.5 Gate Threshold Variation vs.Ambient Temperature

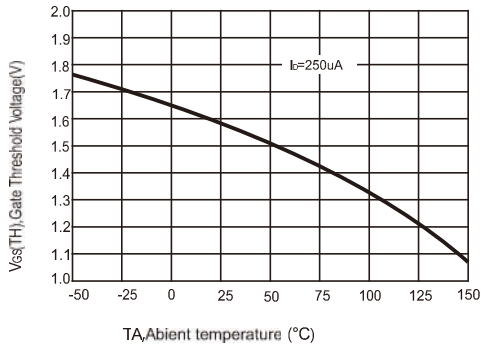


Fig.6 Typical Total Capacitance

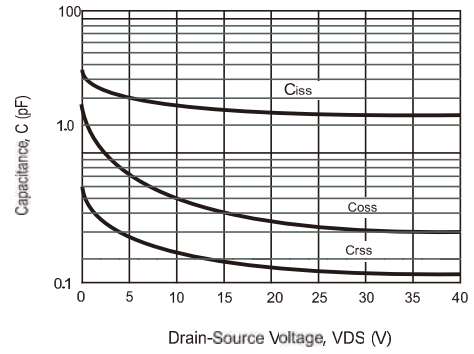
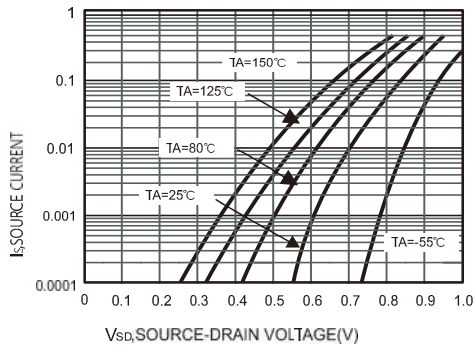
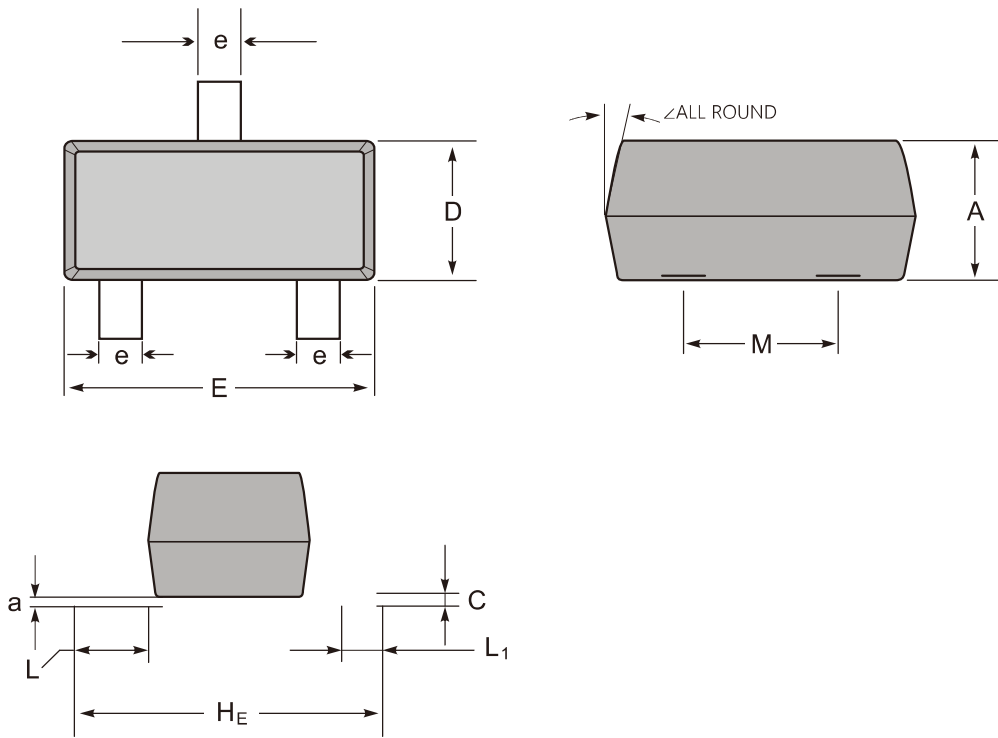


Fig.7 Reverse Dain Current vs.Source-Drain Voltage



SOT-23



SOT-23 mechanical data

UNIT		A	C	D	E	HE	e	M	L	L1	a	\angle
mm	max	1.1	0.20	1.4	3.0	2.6	0.6	1.95	0.55	0.36	0.15	12°
	min	0.9	0.08	1.2	2.8	2.2	0.35	1.7	(ref)	(ref)	0.0	
mil	max	43	7.9	55	118	102	24	77	22	14	6	
	min	35	3.1	47	110	87	13	67	(ref)	(ref)	0.0	

The recommended mounting pad size

