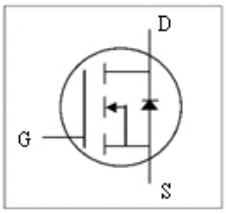
金易微半導體
Kingeavy Semiconductor

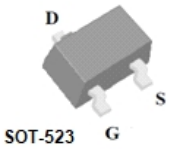
KE7002U0U

N-CHANNEL ENHANCEMENT MODE POWER MOSFET

- Small Package Outline
- Simple Drive Requirement
- Surface Mount Device
- RoHS Compliant & Halogen-Free



BV_{DSS}	60V
$R_{DS(ON)}$	2Ω
I_D	0.4A



SOT-523

Description

KE7002 is from Kingeavy innovated design and silicon process technology to achieve the lowest possible on- resistance and fast switching performance. It provides the designer with an extreme efficient device for use in a wide range of

Absolute Maximum Ratings@T_j=25°C(unless otherwise specified)

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-Source Voltage	±20	V
I_D@T_A=25℃	Drain Current, V_{GS} @ 10V[3]	400	mA
I_D@TA=70℃	Drain Current, V_{GS} @ 10V[3]	300	mA
I_{DM}	Pulsed Drain Current[1]	700	mA
P_D@TA=25℃	Total Power Dissipation[3]	0.2	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃

Thermal Data

Symbol	Parameter	Value	Unit
Rthj-a	Maximum Thermal Resistance, Junction-ambient[3]	700	℃/W

Electrical Characteristics@T_j=25 oC(unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250uA	60	-	-	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance2	V_{GS}=10V, I_D=400mA	-	-	2	Ω
		V_{GS}=4.5V, I_D=300mA	-	-	4	Ω
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250uA	1	-	2.5	V
g_{fs}	Forward Transconductance	V_{GS}=10V, I_D=400mA	-	400	-	mS
I_{DSS}	Drain-Source Leakage Current	V_{DS}=48V, V_{GS}=0V	-	-	3	uA
I_{GSS}	Gate-Source Leakage	V_{GS}=±20V, V_{DS}=0V	-	-	±15	uA
Q_g	Total Gate Charge2	I_D=300mA V_{DS}=50V V_{GS}=4.5V	-	0.9	1.5	nC
Q_{gs}	Gate-Source Charge		-	0.5	-	nC
Q_{gd}	Gate-Drain ("Miller") Charge		-	0.5	-	nC
$t_{d(on)}$	Turn-on Delay Time	V_{DS}=30V I_D=300mA R_G=3.3Ω V_{GS}=10V	-	12	-	ns
t_r	Rise Time		-	10	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	56	-	ns
t_f	Fall Time		-	29	-	ns
C_{iss}	Input Capacitance	V_{GS}=0V V_{DS}=25V f=1.0MHz	-	32	50	pF
C_{oss}	Output Capacitance		-	8	-	pF
Crss	Reverse Transfer Capacitance		-	6	-	pF

Source-Drain Diode

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V_{SD}	Forward On Voltage²	I_S=400mA, V_{GS}=0V	-	-	1.2	V

Notes:

1.Pulse width limited by Max. junction temperature.

2.Pulse test

3.Surface mounted on 1 in2 copper pad of FR4 board, t <10sec ; 125oC/W when mounted on min. copper pad.

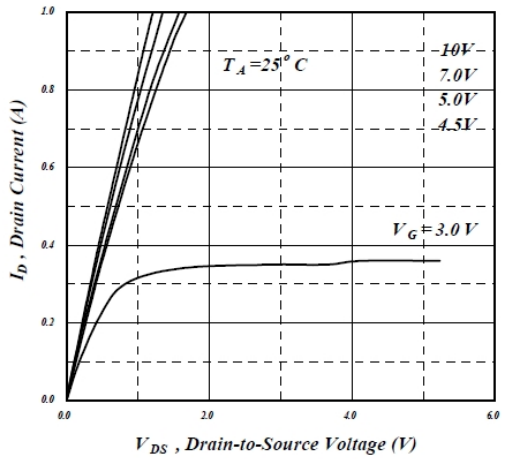


Fig 1. Typical Output Characteristics

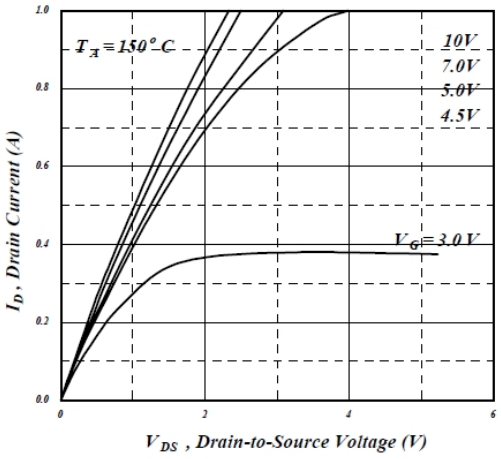


Fig 2. Typical Output Characteristics

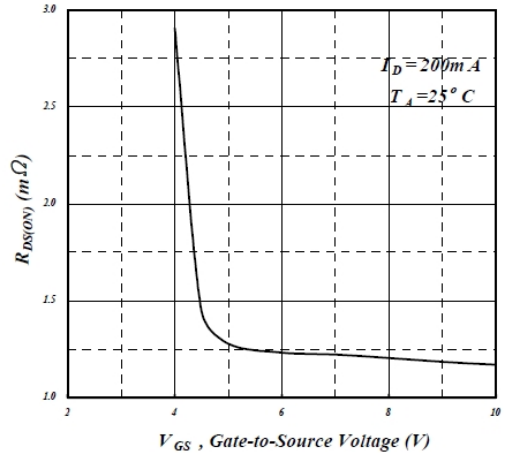


Fig 3. On-Resistance v.s. Gate Voltage

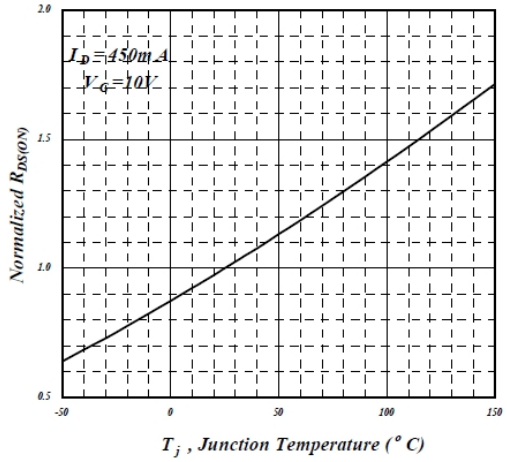


Fig 4. Normalized On-Resistance v.s. Junction Temperature

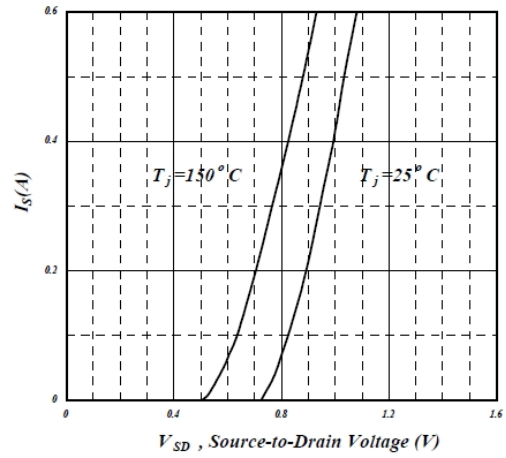


Fig 5. Forward Characteristic of Reverse Diode

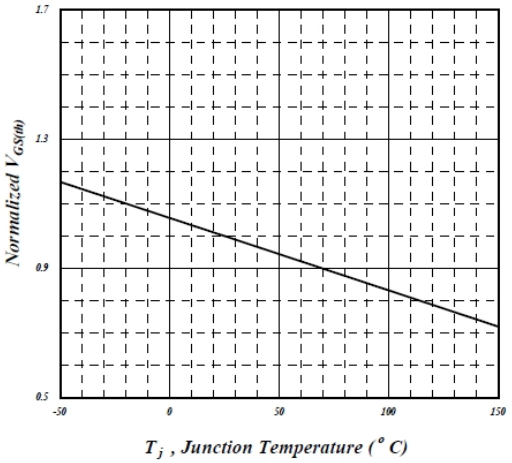


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

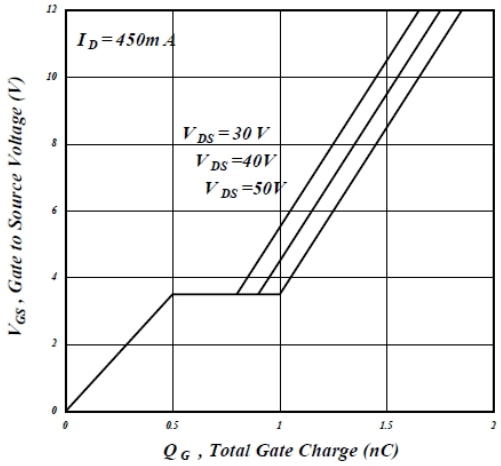


Fig 7. Gate Charge Characteristics

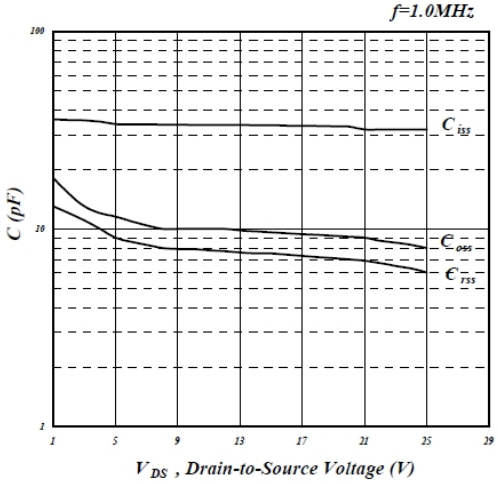


Fig 8. Typical Capacitance Characteristics

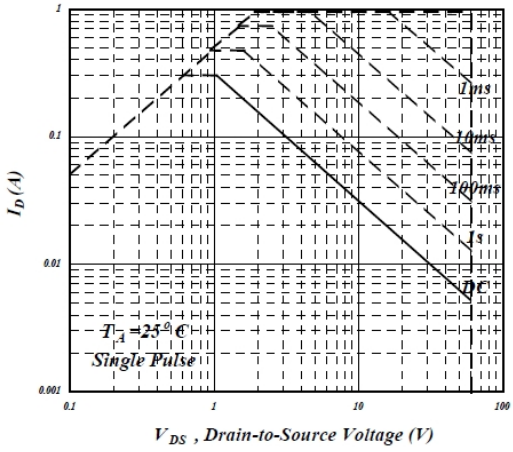


Fig 9. Maximum Safe Operating Area

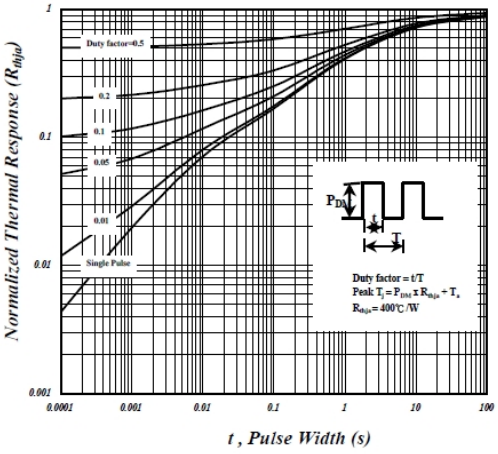


Fig 10. Effective Transient Thermal Impedance

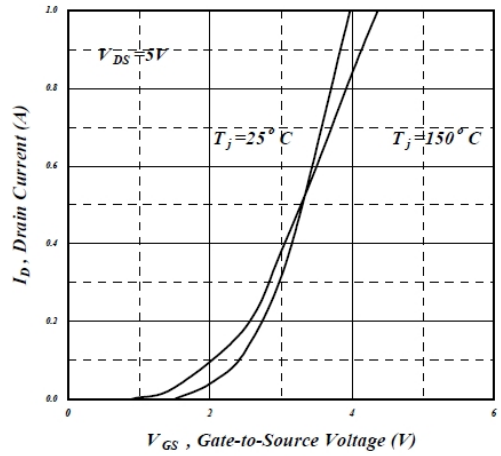


Fig 11. Transfer Characteristics

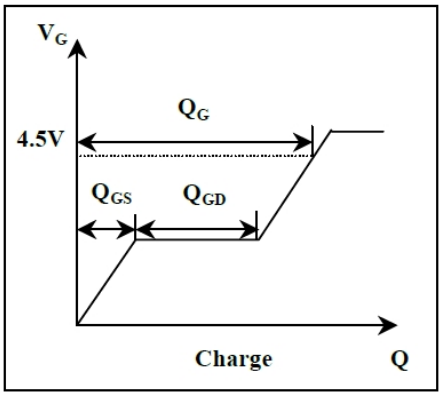
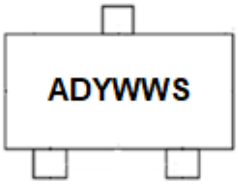


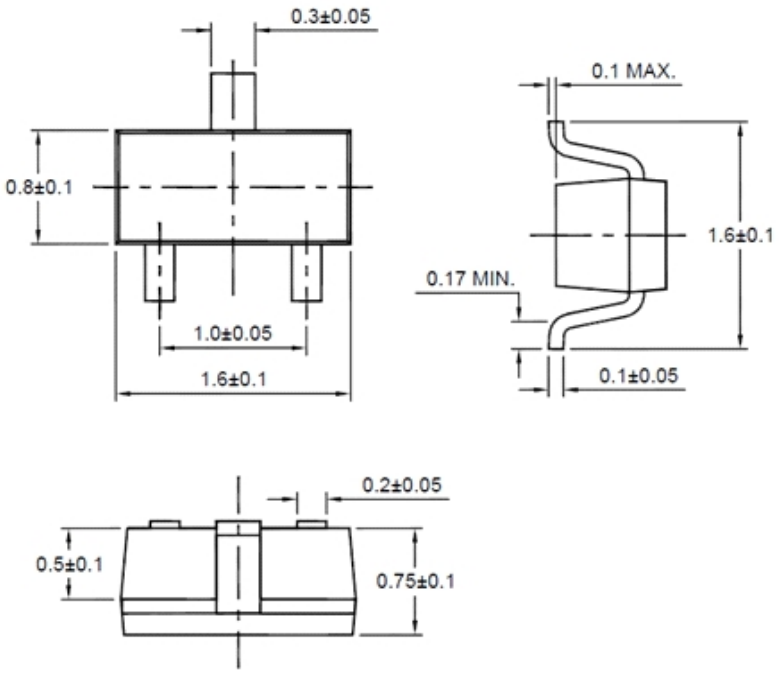
Fig 12. Gate Charge Waveform

Marking Information

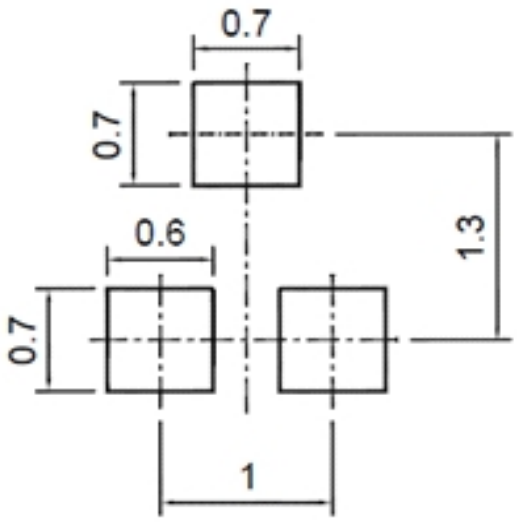


Package	SOT-523	Description
AD	PN code	
Y	Yesr	0-9,A-Z , F=2020, G=2021……
WW	Weeks	Ex. 10/27=44weeks, 11/3=45weeks
S	Assembly	Ass. Code

SOT-523 Package Outline : (mm)



SOT-523 FOOTPRINT: (mm)



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