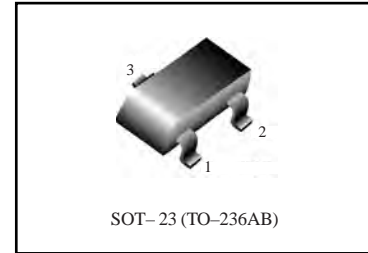


Small Signal MOSFET

300 mAmps, 60 Volts

N-Channel SOT-23

- We declare that the material of product are Halogen Free and compliance with RoHS requirements.
- ESD Protected:1000V



MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	60	V _{dc}
Drain-Gate Voltage ($R_{GS} = 1.0 \text{ M}\Omega$)	V_{DGR}	60	V _{dc}
Drain Current	I_D	± 300	mAdc
- Continuous $T_C = 25^\circ\text{C}$ (Note 1.)	I_D	± 210	
$T_C = 100^\circ\text{C}$ (Note 1.)	I_{DM}	$\pm 1.4A$	
- Pulsed (Note 2.)			
Gate-Source Voltage	V_{GS}	± 20	V _{dc}
- Continuous	V_{GSM}	± 40	V _{pk}
- Non-repetitive ($t_p \leq 50 \mu\text{s}$)			

THERMAL CHARACTERISTICS

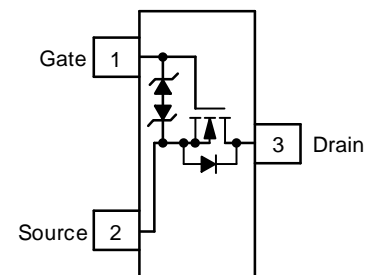
Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board (Note 3.) $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	225 1.8	mW mW/ $^\circ\text{C}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	556	$^\circ\text{C}/\text{W}$
Total Device Dissipation Alumina Substrate, (Note 4.) $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	300 2.4	mW mW/ $^\circ\text{C}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	417	$^\circ\text{C}/\text{W}$
Junction and Storage Temperature	T_J, T_{stg}	- 55 to +150	$^\circ\text{C}$

1. The Power Dissipation of the package may result in a lower continuous drain current.
2. Pulse Test: Pulse Width $\leq 300 \mu\text{s}$, Duty Cycle $\leq 2.0\%$.
3. FR-5 = 1.0 x 0.75 x 0.062 in.
4. Alumina = 0.4 x 0.3 x 0.025 in 99.5% alumina.

ORDERING INFORMATION

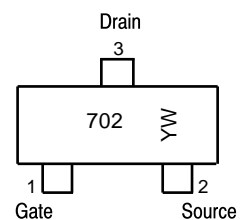
Device	Marking	Shipping
FTK7002	702	3000 Tape & Reel

Simplified Schematic



(Top View)

MARKING DIAGRAM & PIN ASSIGNMENT



702 = Device Code
Y = Year Code
W = Week Code

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

Drain-Source Breakdown Voltage ($V_{GS} = 0, I_D = 10\mu\text{Adc}$)	$V_{(BR)DSS}$	60	-	-	Vdc
Zero Gate Voltage Drain Current ($V_{GS} = 0, V_{DS} = 60\text{Vdc}$)	I_{DSS}	-	-	1.0 500	μAdc
Gate-Body Leakage Current, Forward ($V_{GS} = 20\text{Vdc}$)	I_{GSSF}	-	-	1	μAdc
Gate-Body Leakage Current, Reverse ($V_{GS} = -20\text{Vdc}$)	I_{GSSR}	-	-	-1	μAdc

ON CHARACTERISTICS (Note 2.)

Gate Threshold Voltage ($V_{DS} = V_{GS}, I_D = 250\mu\text{Adc}$)	$V_{GS(th)}$	1.0	1.6	2	Vdc
On-State Drain Current ($V_{DS} \geq 2.0 V_{DS(on)}, V_{GS} = 10\text{Vdc}$)	$I_{D(on)}$	500	-	-	mA
Static Drain-Source On-State Voltage ($V_{GS} = 10\text{Vdc}, I_D = 500\text{mAdc}$) ($V_{GS} = 5.0\text{Vdc}, I_D = 50\text{mAdc}$)	$V_{DS(on)}$	-	-	3.75 0.375	Vdc
Static Drain-Source On-State Resistance ($V_{GS} = 10\text{V}, I_D = 500\text{mAdc}$) $T_C = 25^\circ\text{C}$ $T_C = 125^\circ\text{C}$ ($V_{GS} = 5.0\text{Vdc}, I_D = 50\text{mAdc}$) $T_C = 25^\circ\text{C}$ $T_C = 125^\circ\text{C}$	$r_{DS(on)}$	-	1.4 -	5.3 10.5	Ohms
Forward Transconductance ($V_{DS} \geq 2.0 V_{DS(on)}, I_D = 200\text{mAdc}$)	g_{FS}	80	-	-	mmhos

DYNAMIC CHARACTERISTICS

Input Capacitance ($V_{DS} = 25\text{Vdc}, V_{GS} = 0, f = 1.0\text{MHz}$)	C_{iss}	-	17	50	pF
Output Capacitance ($V_{DS} = 25\text{Vdc}, V_{GS} = 0, f = 1.0\text{MHz}$)	C_{oss}	-	10	25	pF
Reverse Transfer Capacitance ($V_{DS} = 25\text{Vdc}, V_{GS} = 0, f = 1.0\text{MHz}$)	C_{rss}	-	2.5	5.0	pF

SWITCHING CHARACTERISTICS (Note 2.)

Turn-On Delay Time	($V_{DD} = 25\text{Vdc}, I_D \cong 500\text{mAdc},$ $R_G = 25\Omega, R_L = 50\Omega, V_{gen} = 10\text{V}$)	$t_{d(on)}$	-	7	20	ns
Turn-Off Delay Time		$t_{d(off)}$	-	11	40	ns

BODY-DRAIN DIODE RATINGS

Diode Forward On-Voltage ($I_S = 115\text{mAdc}, V_{GS} = 0\text{V}$)	V_{SD}	-	-	-1.5	Vdc
Source Current Continuous (Body Diode)	I_S	-	-	-115	mAdc
Source Current Pulsed	I_{SM}	-	-	-800	mAdc

2. Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2.0\%$.

Typical Performance Characteristics

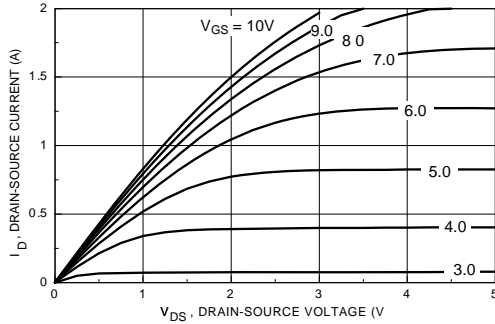


Figure 1. On-Region Characteristics

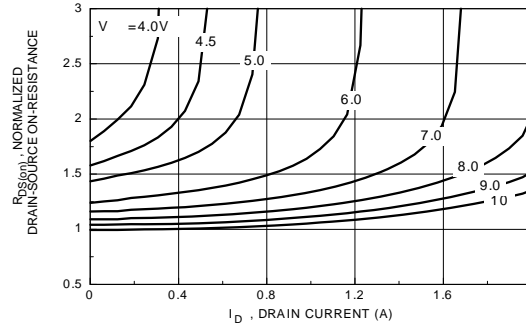


Figure 2. On-Resistance Variation with Gate Voltage and Drain Current

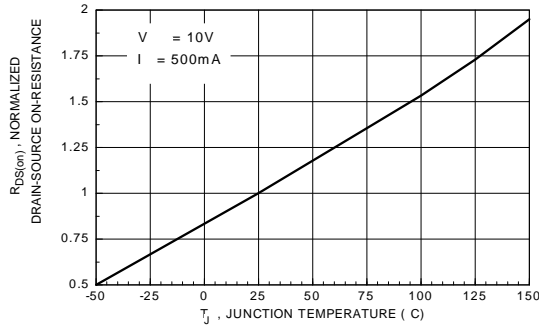


Figure 3. On-Resistance Variation with Temperature

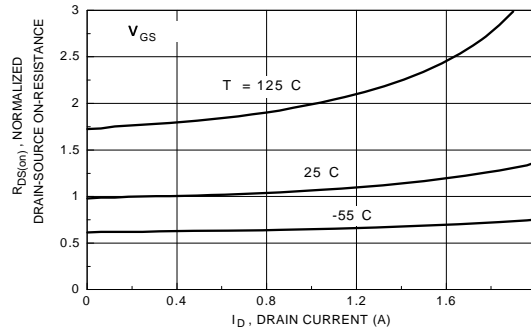


Figure 4. On-Resistance Variation with Drain Current and Temperature

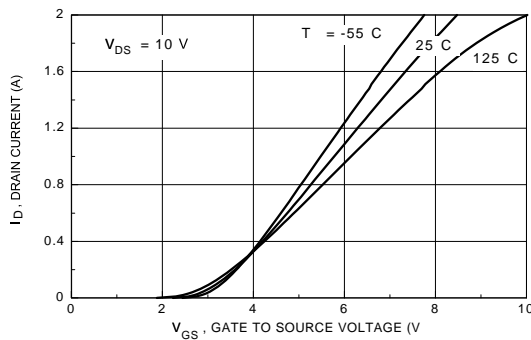


Figure 5. Transfer Characteristics

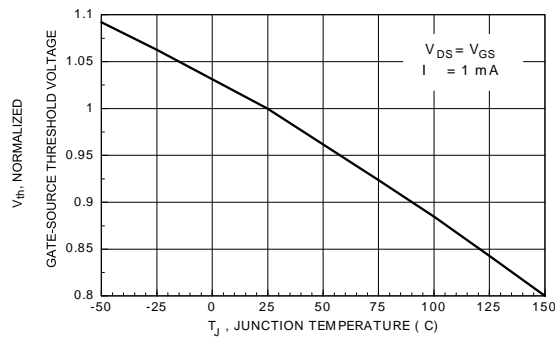
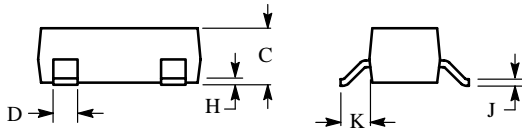
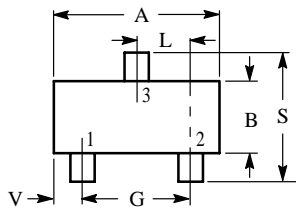


Figure 6. Gate Threshold Variation with Temperature

SOT -23

NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M,1982
2. CONTROLLING DIMENSION: INCH.



DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.1102	0.1197	2.80	3.04
B	0.0472	0.0551	1.20	1.40
C	0.0350	0.0440	0.89	1.11
D	0.0150	0.0200	0.37	0.50
G	0.0701	0.0807	1.78	2.04
H	0.0005	0.0040	0.013	0.100
J	0.0034	0.0070	0.085	0.177
K	0.0140	0.0285	0.35	0.69
L	0.0350	0.0401	0.89	1.02
S	0.0830	0.1039	2.10	2.64
V	0.0177	0.0236	0.45	0.60

