

**N-channel Enhancement Mode MOSFET****GENERAL DESCRIPTION**

The GP7002 is N-channel enhancement mode MOSFET provides the designer with the best combination of fast switching response, low on-resistance, and low cost.

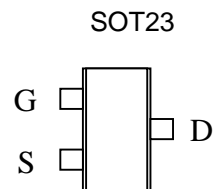
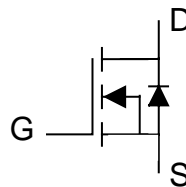
The SOT23 package is space saving surface mount for all commercial and industrial applications. It is suitable for low voltage, low loss and fast switching applications such as Li-ion battery pack applications.

FEATURES

- **0.25A, 60V, $R_{DS(ON)} = 3.0\Omega$ @ $V_{GS} = 10V$**
- **0.25A, 60V, $R_{DS(ON)} = 4.0\Omega$ @ $V_{GS} = 5.0V$**
- **Low gate charge**
- **Fast switching speed**
- **High Power and Current handling capability**

APPLICATIONS

- Load Switch

PACKAGE PIN OUT**MARKING INFORMATION**

Part Number	Marking	Package
GP7002	xxww	SOT23

xx: Year ww: Production date code

ABSOLUTE MAXIMUM RATINGS (TA = 25°C unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current I_D @ $T_A = 25^\circ C$	I_D	250	mA
Pulsed Drain Current ¹ I_{DM}	I_{DM}	1	A
Total Power Dissipation P_D @ $T_A = 25^\circ C$	P_D	200	mW
Storage Temperature Range	T_{STG}	-55 to +150	$^\circ C$
Operation Junction Temperature Range	T_J	-55 to +150	$^\circ C$
THERMAL CHARACTERISTICS			
Thermal Resistance, Junction-to-Ambient	$R_{thj-amb}$	90	$^\circ C/W$
Thermal Resistance, Junction-to-Case	R_{thj-c}	80	$^\circ C/W$

ELECTRICAL CHARACTERISTICS (TA = 25°C unless otherwise noted)						
Parameter	Symbol	Test Conditions	GP7002			Units
			Min	Typ	Max	
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =-10μA	60			V
Static Drain-source On-Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =250mA			3	Ω
		V _{GS} =5.0V, I _D =50mA			4	Ω
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1	2	2.5	V
Forward Transconductance	g _{fs}	V _{DS} =7V, I _D =200mA	78			mS
Drain-Source Leakage Current (T _j =25°C)	I _{DSS}	V _{DS} =60V, V _{GS} =0V			1	μA
Gate-Source Leakage	I _{GSS}	V _{GS} =±20V, V _{DS} =0V			±100	nA
Turn-On Delay Time ²	t _{d(on)}	V _{DS} =30V		7.7	19	ns
Turn-On Rise Time	t _r	I _D =100mA		5.5		ns
Turn-Off Delay Time	t _{d(off)}	R _G =10Ω, V _{GS} =10V		7.8	20	ns
Turn-Off Fall Time	t _f	R _D =10Ω		2.9		ns
Input Capacitance	C _{iss}	V _{GS} =0V		20	50	pF
Output Capacitance	C _{oss}	V _{DS} =25V		11	25	pF
Reverse Transfer Capacitance	C _{rss}	f=1.0MHz		2.5	5	pF

SOURCE-DRAIN DIODE						
Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Continuous Source Current (Body Diode)	I _S	V _D =V _G =0V, V _S =1.2V			250	mA
Pulsed Source Current (Body Diode)	I _{SM}				450	mA
Forward On Voltage ²	V _{SD}	T _j =25°C, I _S =1.7A, V _{GS} =0V		0.75	1.5	V

Notes:

1. Pulse width limited by safe operating area.
2. Pulse width ≤ 300μs, duty cycle ≤ 2%.

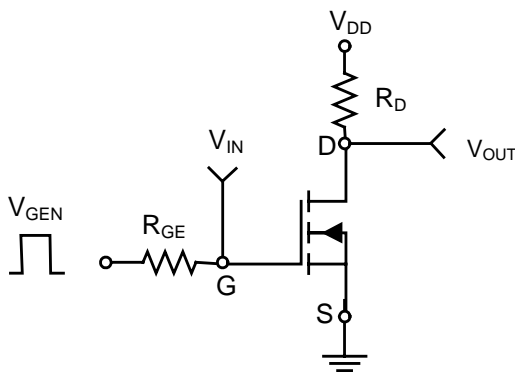


Fig 1. Switching Time Circuit

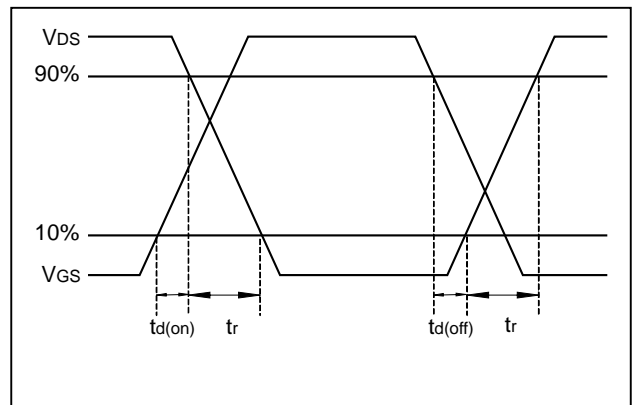
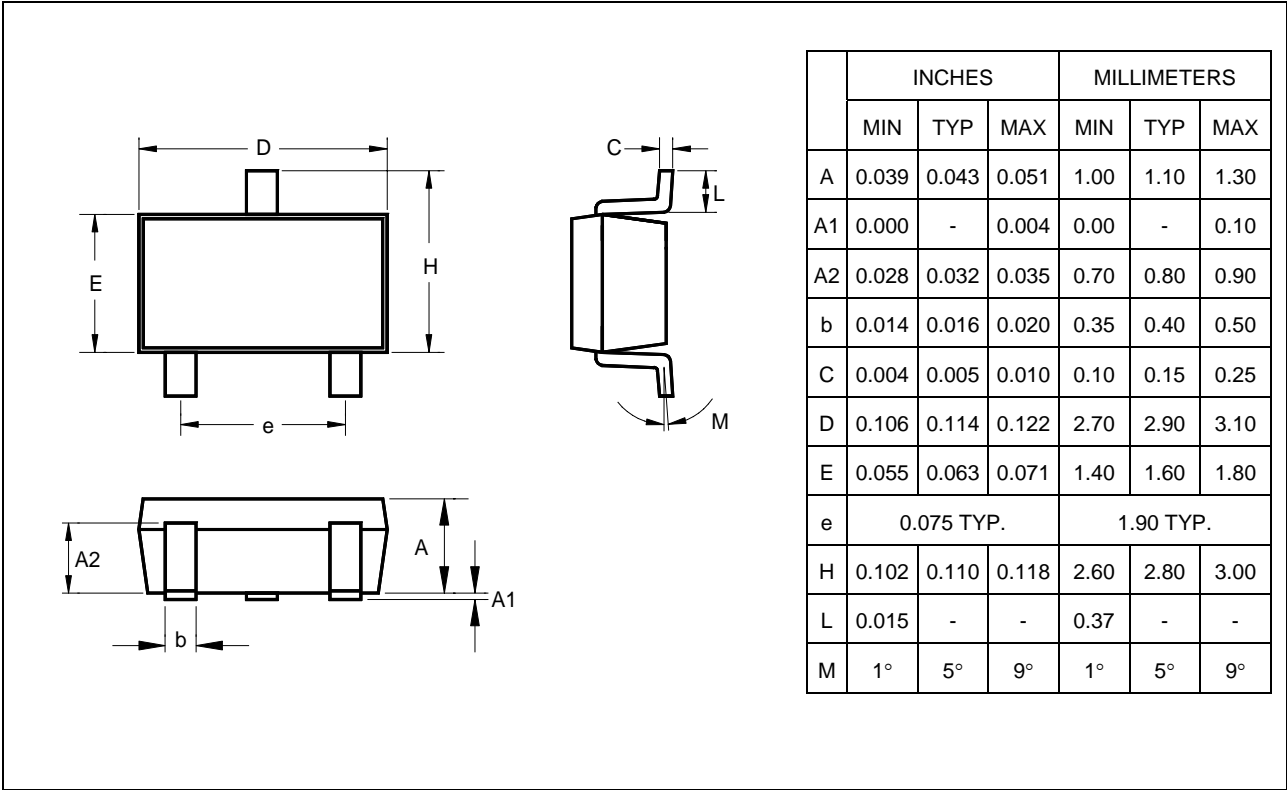


Fig 2. Switching Time Waveform

Package Information

Surface Mount SOT-23



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