

MGSF1N02LT1

Power MOSFET 750 mAmps, 20 Volts N-Channel SOT-23

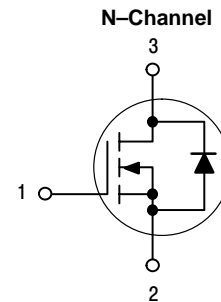
These miniature surface mount MOSFETs low $R_{DS(on)}$ assure minimal power loss and conserve energy, making these devices ideal for use in space sensitive power management circuitry. Typical applications are dc-dc converters and power management in portable and battery-powered products such as computers, printers, PCMCIA cards, cellular and cordless telephones.

- Low $R_{DS(on)}$
- Miniature SOT-23 Surface Mount Package Saves Board Space

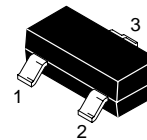
MAXIMUM RATINGS ($T_J = 25^\circ\text{C}$ unless otherwise noted)

Rating	Symbol	Value	Unit
Drain-to-Source Voltage	V_{DSS}	20	Vdc
Gate-to-Source Voltage – Continuous	V_{GS}	± 20	Vdc
Drain Current – Continuous @ $T_A = 25^\circ\text{C}$ – Pulsed Drain Current ($t_p \leq 10 \mu\text{s}$)	I_D I_{DM}	750 2000	mA
Total Power Dissipation @ $T_A = 25^\circ\text{C}$	P_D	400	mW
Operating and Storage Temperature Range	T_J, T_{stg}	-55 to 150	$^\circ\text{C}$
Thermal Resistance – Junction-to-Ambient	$R_{\theta JA}$	300	$^\circ\text{C/W}$
Maximum Lead Temperature for Soldering Purposes, 1/8" from case for 10 seconds	T_L	260	$^\circ\text{C}$

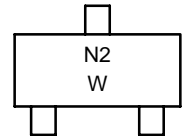
750 mAmps
20 VOLTS
 $R_{DS(on)} = 90 \text{ m}\Omega$



MARKING DIAGRAM

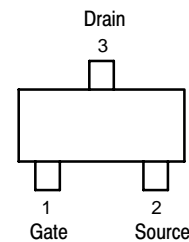


SOT-23
CASE 318
STYLE 21



W = Work Week

PIN ASSIGNMENT



ORDERING INFORMATION

Device	Package	Shipping
MGSF1N02LT1	SOT-23	3000 Tape & Reel
MGSF1N02LT3	SOT-23	10,000 Tape & Reel

Preferred devices are recommended choices for future use and best overall value.

MGSF1N02LT1

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

Drain-to-Source Breakdown Voltage (V _{GS} = 0 Vdc, I _D = 10 μAdc)	V _{(BR)DSS}	20	–	–	Vdc
Zero Gate Voltage Drain Current (V _{DS} = 20 Vdc, V _{GS} = 0 Vdc) (V _{DS} = 20 Vdc, V _{GS} = 0 Vdc, T _J = 125°C)	I _{DSS}	–	–	1.0 10	μAdc
Gate-Body Leakage Current (V _{GS} = ± 20 Vdc, V _{DS} = 0 Vdc)	I _{GSS}	–	–	±100	nAdc

ON CHARACTERISTICS (Note 1.)

Gate Threshold Voltage (V _{DS} = V _{GS} , I _D = 250 μAdc)	V _{GS(th)}	1.0	1.7	2.4	Vdc
Static Drain-to-Source On-Resistance (V _{GS} = 10 Vdc, I _D = 1.2 Adc) (V _{GS} = 4.5 Vdc, I _D = 1.0 Adc)	r _{DS(on)}	–	0.075 0.115	0.090 0.130	Ohms

DYNAMIC CHARACTERISTICS

Input Capacitance	(V _{DS} = 5.0 Vdc)	C _{iss}	–	125	–	pF
Output Capacitance	(V _{DS} = 5.0 Vdc)	C _{oss}	–	120	–	
Transfer Capacitance	(V _{DG} = 5.0 Vdc)	C _{rss}	–	45	–	

SWITCHING CHARACTERISTICS (Note 2.)

Turn-On Delay Time	(V _{DD} = 15 Vdc, I _D = 1.0 Adc, R _L = 50 Ω)	t _{d(on)}	–	2.5	–	ns
Rise Time		t _r	–	1.0	–	
Turn-Off Delay Time		t _{d(off)}	–	16	–	
Fall Time		t _f	–	8.0	–	
Gate Charge (See Figure 6)		Q _T	–	6000	–	pC

SOURCE-DRAIN DIODE CHARACTERISTICS

Continuous Current	I _S	–	–	0.6	A
Pulsed Current	I _{SM}	–	–	0.75	
Forward Voltage (Note 2.)	V _{SD}	–	0.8	–	V

1. Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2%.
2. Switching characteristics are independent of operating junction temperature.