

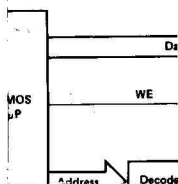
**With the new
FETlington MOSFET
from Siliconix...**



FETlington.™ **The Low Cost Solution.**



FETlington is a trademark of Siliconix, Inc.



... You won't need bipolar Darlington.

With the enclosed sample, Siliconix invites you to discover for yourself the full advantages of MOSPOWER. Find out how easily it can replace bipolar interfaces between digital systems and higher voltage or power loads. It's faster, has higher power gain and needs practically no drive current. Plus you can eliminate biasing components, predrive stages, and circuit board and assembly costs you are paying now.

2N7000

60V, 5Ω, TO-92 Logic-Compatible N-Channel MOSPOWER

Benefits

- Simpler designs- Interfaces directly to CMOS or TTL Logic
- Logic compatible — 5 volt in, 100mA out (typically)
- Lower system cost
- Functionally replaces Darlington
- Can also be used in analog switching

Features

- High input impedance MOS gate
- Square SOA—no secondary breakdown
- DURAMOS™ gate transient protection-up to ±40 Volts
- Fast switching—10ns (max)
- Auto insertable, low cost TO-92 package

Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Drain-Source Voltage	..... 60V	Linear Derating	
Drain-Gate Voltage	..... 60V	Factor	..... 3.2mW/°C
Gate-Source Voltage	..... ±40V	Operating and Storage	
Drain Current		Temperature	.. -55°C to +150°C
Continuous ¹	..... 200mA	Lead Temperature	
Pulsed ²	..... 500mA	(1/16" from Case for	
Maximum Dissipation		10 secs)	..... +300°C
at 25°C Case	..... 400mW		

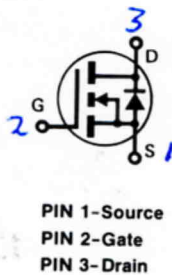
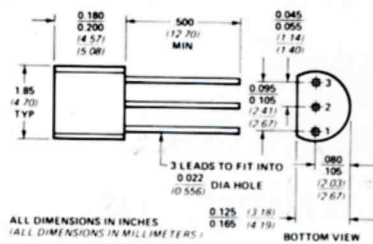
Notes:

1. Limited by package dissipation.
2. Pulse width ≤ 300μS, Duty cycle ≤ 2%

B Siliconix
incorporated

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Package Dimensions



Electrostatically sensitive



HANDLE WITH CARE

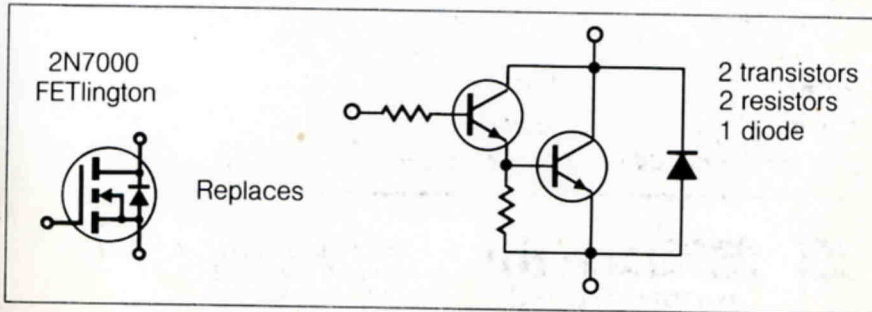
Electrical Characteristics ($T_C = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Min	Max	Unit	Test Conditions
Static				
BV_{DS} Drain-Source Breakdown	60		V	$V_{GS} = 0, I_D = 10 \mu\text{A}$
$V_{GS(th)}$ Gate-Source Threshold Voltage	0.8	3.0	V	$V_{DS} = V_{GS}, I_D = 1 \text{ mA}$
I_{GSS} Gate-Body Leakage Current		± 10	nA	$V_{DS} = 0, V_{GS} = \pm 15\text{V}$
I_{DSS} Zero Gate Voltage Drain Current		1.0	μA	$V_{DS} = 48\text{V}, V_{GS} = 0$
$I_{D(on)}$ ON-State Drain Current ¹	75		mA	$V_{GS} = 4.5\text{V}, V_{DS} = 10\text{V}$
$V_{DS(on)}$ Drain-Source ON-State Voltage ¹		0.4 2.5	V	$I_D = 75 \text{ mA}, V_{GS} = 4.5\text{V}$ $I_D = 500 \text{ mA}, V_{GS} = 10\text{V}$
$r_{DS(on)}$ Drain-Source ON-State Resistance ¹		5	Ω	$I_D = 500 \text{ mA}, V_{GS} = 10\text{V}$
Dynamic				
g_{fs} Forward Transconductance ¹	100		mS	$I_D = 200 \text{ mA}, V_{DS} = 10\text{V}$
C_{iss} Input Capacitance		60	pF	$V_{DS} = 25\text{V}, V_{GS} = 0,$ $f = 1 \text{ MHz}$
C_{rss} Reverse Transfer Capacitance Common Source Output		5		
C_{oss} Capacitance		25		
t_{ON} Turn-ON Time		10	ns	$V_{DD} = 15\text{V}, I_D = 500 \text{ mA},$
t_{OFF} Turn-OFF Time		10		$R_L = 25\Omega, R_g = 25\Omega$

Drain-Source Diode Characteristics

	Typ		
V_{SD} Forward ON Voltage ¹	-0.85	V	$I_S = -400 \text{ mA}, V_{GS} = 0$

Note: 1. Pulse width $\leq 300 \mu\text{sec}$, Duty cycle $\leq 2\%$



Typical Applications

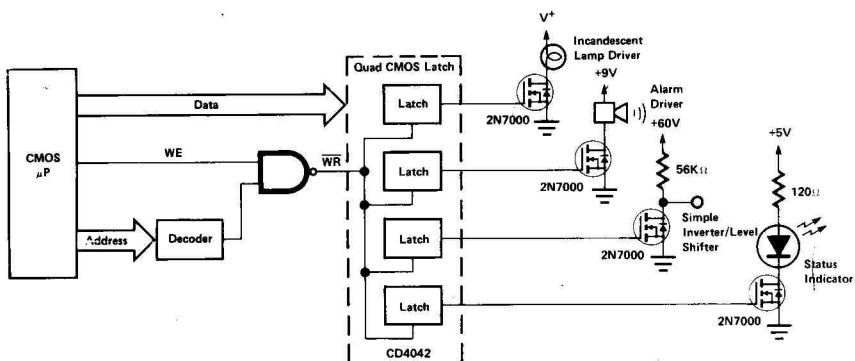


Figure 1. Multifunction Microprocessor Control Interface

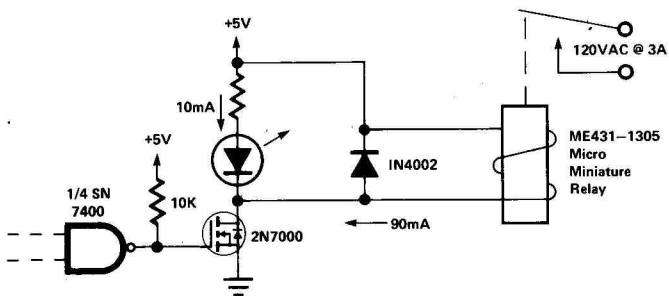


Figure 2. Simple Relay Driver With Indicator

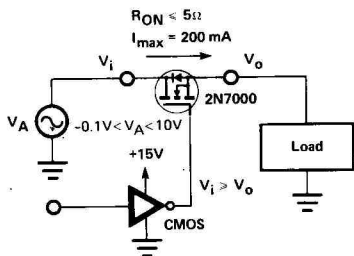


Figure 3. Simple Unidirectional Power Analog Switch

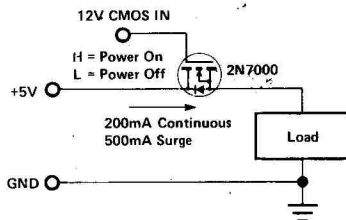


Figure 4. Positive Side Power Supply Switch

Courtesy of

