FAIRCHILD

SEMICONDUCTOR®
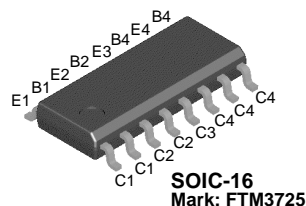
FTM3725

NPN Transistor

- This device is designed for high current, low impedance line driver applications.
- Sourced from process 26.

SOIC-16
Mark: FTM3725

Absolute Maximum Ratings* T_a=25°C unless otherwise noted

Symbol	Parameter	Value	Units
V_{CEO}	Collector-Emitter Voltage	40	V
V_{CBO}	Collector-Base Voltage	60	V
V_{EBO}	Emitter-Base Voltage	6.0	V
I_C	Collector Current - Continuous	1.2	A
T_J, T_{STG}	Operating and Storage Junction Temperature Range	- 55 ~ 150	°C

* These ratings are limiting values above whitch the serviceability of any semiconductor device may be impaird.

NOTES:
1. These ratings are based on a maximum junction temperature of 150 degrees C.
2. These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

Electrical Characteristics T_a=25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristics						
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage *	I_C = 10mA, I_B = 0	40			V
$V_{(BR)CES}$	Collector-Emitter Breakdown Voltage	I_C = 10µA, V_{BE} = 0	60			V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	I_C = 10µA, I_E = 0	60			V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	I_E = 10µA, I_C = 0	6.0			V
I_{CBO}	Collector Cutoff Current	V_{CB} = 50V, I_E = 0			100	nA
		V_{CB} = 50V, I_E = 0, T_a = 100°C			10	µA
On Characteristics *						
h_{FE}	DC Current Gain	I_C = 10mA, V_{CE} = 1.0V	30			
		I_C = 100mA, V_{CE} = 1.0V	60		180	
		I_C = 100mA, V_{CE} = 1.0V, T_a = 55°C	30			
		I_C = 300mA, V_{CE} = 1.0V	40			
		I_C = 500mA, V_{CE} = 1.0V	35			
		I_C = 500mA, V_{CE} = 1.0V, T_a = 55°C	20			
		I_C = 800mA, V_{CE} = 2.0V	20			
		I_C = 1.0mA, V_{CE} = 5.0V	25			
V_{CE}(sat)	Collector-Emitter Saturation Voltage	I_C = 10mA, I_B = 1.0mA			0.25	V
		I_C = 100mA, I_B = 10mA			0.26	V
		I_C = 300mA, I_B = 30mA			0.4	V
		I_C = 500mA, I_B = 50mA			0.52	V
		I_C = 800mA, I_B = 80mA			0.8	V
		I_C = 1.0mA, I_B = 100mA			0.95	V
V_{BE}(sat)	Base-Emitter Saturation Voltage	I_C = 10mA, I_B = 1.0mA			0.76	V
		I_C = 100mA, I_B = 10mA			0.86	V
		I_C = 300mA, I_B = 30mA			1.1	V
		I_C = 500mA, I_B = 50mA			1.2	V
		I_C = 800mA, I_B = 80mA			1.5	V
		I_C = 1.0mA, I_B = 100mA			1.7	V

Electrical Characteristics* (Continued) T_a=25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Small Signal Characteristics						
f_T	Current Gain Bandwidth Product	I_C = 50mA, V_{CE} = 10V, f = 100MHz	250			MHz
C_{obo}	Output Capacitance	V_{CB} = 10V, I_E = 0, f = 1.0MHz			15	pF
C_{ibo}	Input Capacitance	V_{EB} = 0.5V, I_C = 0, f = 1.0MHz			65	pF
Switching Characteristics						
t_{on}	Turn-on Time	V_{CC} = 30V, V_{BE} = 3.8V		20		ns
t_d	Delay Time	I_C = 500mA, I_{B1} = 50mA		10		ns
t_r	Rise Time			12		ns
t_{off}	Turn-off Time	V_{CC} = 30V, I_C = 500mA		250		ns
t_s	Storage Time	I_{B1} = I_{B2} = 50mA		235		ns
t_f	Fall Time			15		ns

* Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 1.0%

Thermal Characteristics T_a=25°C unless otherwise noted

Symbol	Parameter	Max.	Units
P_D	Total Device Dissipation Derate above 25°C	1.0 8.0	W mW/°C
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient Effectine 4 Die Each Die	 125 240	 °C/W °C/W

Package Dimensions

SOIC-16

```
        10.00
         9.80                    A

              (0.25)

        8.89

     16 15 14 13 12 11 10  9
                                 B
                                      0.50

  6.20                  4.00
  5.80                  3.80                  5.75

      1  2  3  4  5  6  7  8
                                      1.00

      1.27              0.51
                        0.35          1.27
             0.25 M C B A             8.89

                                 LAND PATTERN RECOMMENDATION
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                              SEE DETAIL A

  1.75              0.25
  1.35              0.10    C                0.25
                                            0.19
                      0.10 C
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```
         0.50  X 54°
         0.25

  (R0.10)              GAGE PLANE

  (R0.10)                              0.36

  8°      0.90
  0°      0.50
      (1.04)    DETAIL A    SEATING PLANE
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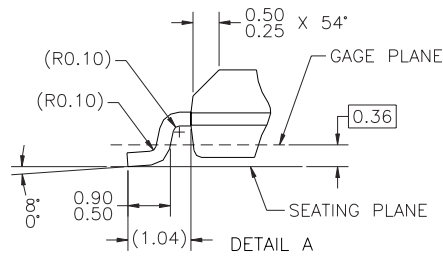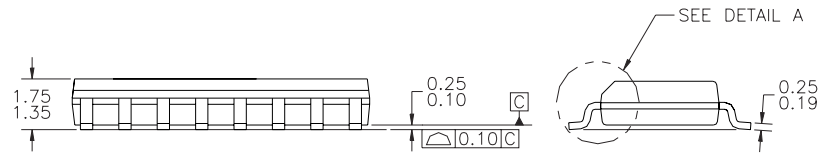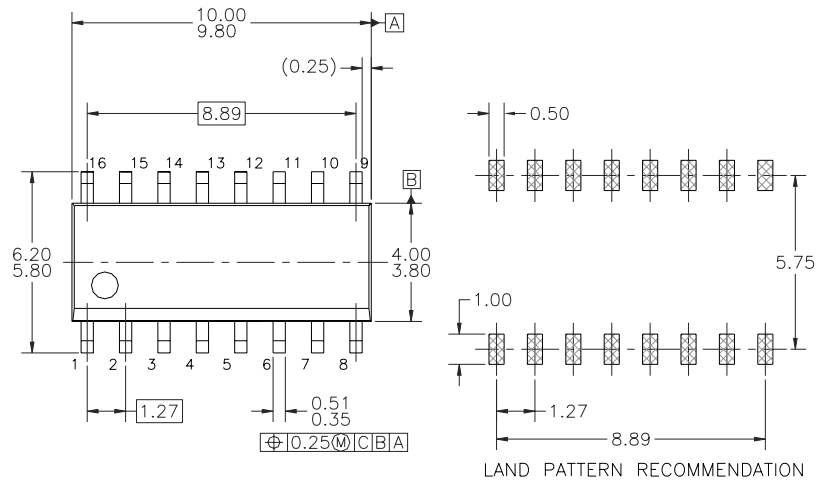
NOTES: UNLESS OTHERWISE SPECIFIED

A) THIS PACKAGE CONFORMS TO JEDEC
    MS-012, VARIATION AC, ISSUE C,
    DATED MAY 1990.
B) ALL DIMENSIONS ARE IN MILLIMETERS.
C) STANDARD LEAD FINISH:
    200 MICROINCHES / 5.08 MICRONS MIN.
    LEAD/TIN (SOLDER) ON COPPER.

Dimensions in Millimeters

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