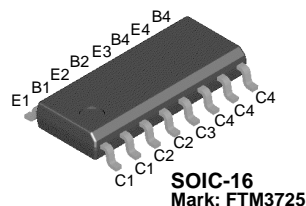


FTM3725

NPN Transistor

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



Absolute Maximum Ratings* $T_a=25^\circ\text{C}$ 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	$^\circ\text{C}$

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

NOTES:

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

Electrical Characteristics $T_a=25^\circ\text{C}$ unless otherwise noted

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

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

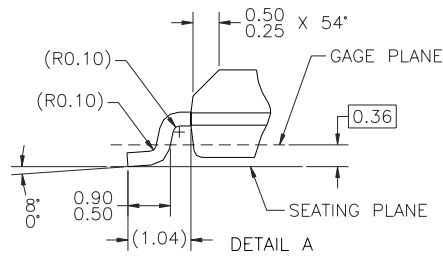
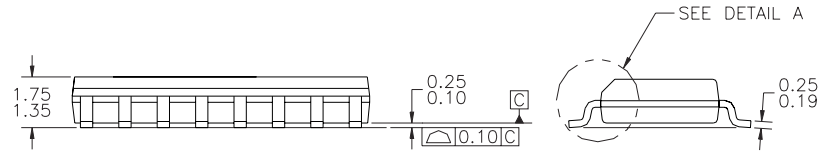
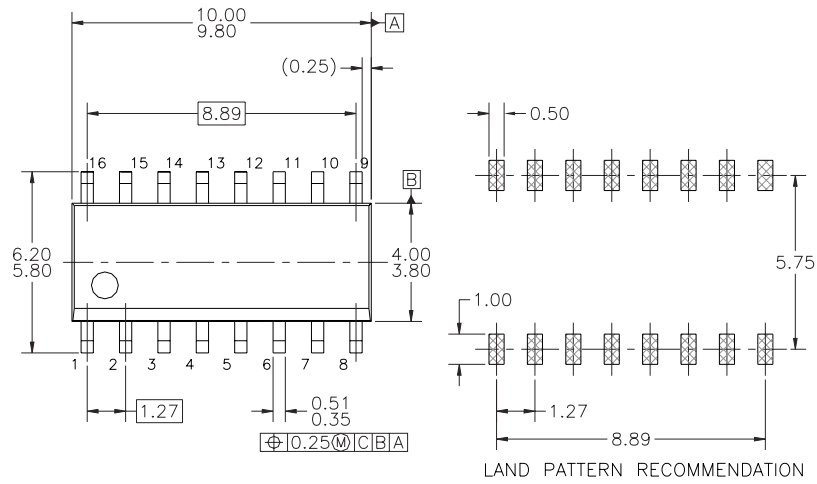
Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Small Signal Characteristics						
f_T	Current Gain Bandwidth Product	$I_C = 50\text{mA}$, $V_{CE} = 10\text{V}$, $f = 100\text{MHz}$	250			MHz
C_{obo}	Output Capacitance	$V_{CB} = 10\text{V}$, $I_E = 0$, $f = 1.0\text{MHz}$			15	pF
C_{ibo}	Input Capacitance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

* Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 1.0\%$ **Thermal Characteristics** $T_a=25^\circ\text{C}$ unless otherwise noted

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

Package Dimensions

SOIC-16



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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PRODUCT STATUS DEFINITIONS

Definition of Terms

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