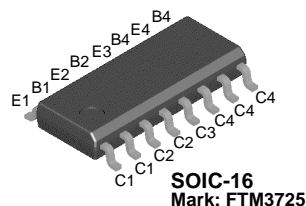


# FTM3725

## 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:

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

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
<b>Off Characteristics</b>						
$V_{(BR)CEO}$	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 $\mu\text{A}$
<b>On Characteristics *</b>						
$h_{FE}$	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

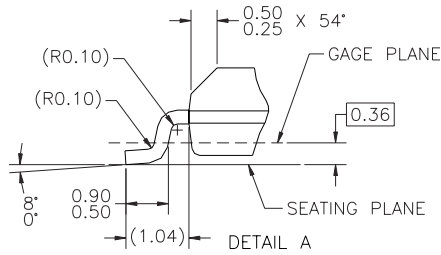
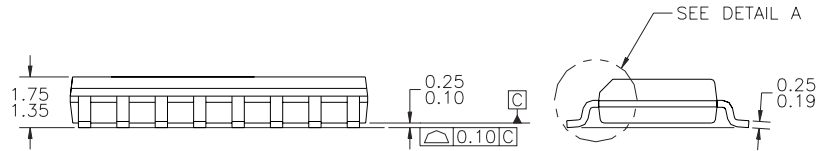
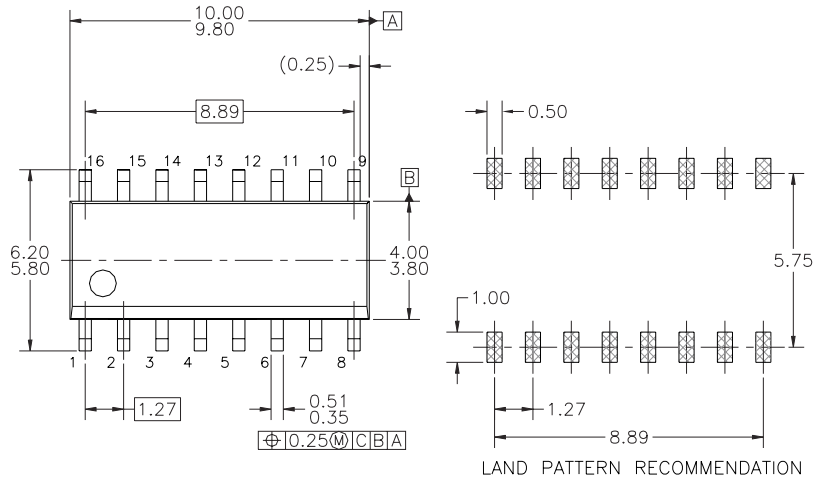
Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
<b>Small Signal Characteristics</b>						
$f_T$	Current Gain Bandwidth Product	$I_C = 50\text{mA}$ , $V_{CE} = 10\text{V}$ , $f = 100\text{MHz}$	250			MHz
$C_{obo}$	Output Capacitance	$V_{CB} = 10\text{V}$ , $I_E = 0$ , $f = 1.0\text{MHz}$			15	pF
$C_{ibo}$	Input Capacitance	$V_{EB} = 0.5\text{V}$ , $I_C = 0$ , $f = 1.0\text{MHz}$			65	pF
<b>Switching Characteristics</b>						
$t_{on}$	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 $25^\circ\text{C}$	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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