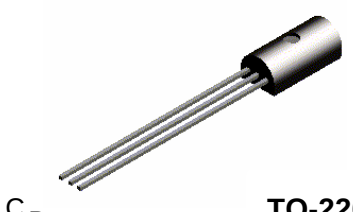
FAIRCHILD SEMICONDUCTOR TM

Discrete Power & Signal Technologies

TN6725A



C B E

TO-226

NPN Darlington Transistor

This device is designed for applications requiring extremely high current gain at collector currents to 1A. Sourced from Process 05. See MPSA14 for characteristics.

Absolute Maximum Ratings*

$T_{A = 25°C}$ unless otherwise noted

Symbol	Parameter	Value	Units
V_{CES}	Collector-Emitter Voltage	50	V
V_{CBO}	Collector-Base Voltage	60	V
V_{EBO}	Emitter-Base Voltage	12	V
I_C	Collector Current - Continuous	1.2	A
$T_{J, Tstg}$	Operating and Storage Junction Temperature Range	-55 to +150	°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°C.

2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

Thermal Characteristics

$T_{A = 25°C}$ unless otherwise noted

Symbol	Characteristic	Max	Units
		TN6725A	
P_D	Total Device Dissipation Derate above 25°C	1 8	W mW/°C
$R_{\theta JC}$	Thermal Resistance, Junction to Case	50	°C/W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	125	°C/W

NPN Darlington Transistor
(continued)

Electrical Characteristics
$T_{A = 25°C}$ unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units
OFF CHARACTERISTICS					
BV_{CES}	Collector-Emitter Breakdown Voltage	I_C = 1 mA	50		V
BV_{CBO}	Collector-Base Breakdown Voltage	I_C = 100 μA	60		V
BV_{EBO}	Emitter-Base Breakdown Voltage	I_E = 10 μA	12		V
I_{CBO}	Collector Cutoff Current	V_{CB} = 40 V		100	nA
I_{EBO}	Emitter Cutoff Current	V_{EB} = 10 V		100	nA
ON CHARACTERISTICS*					
h_{FE}	DC Current Gain	I_C = 200 mA, V_{CE} = 5 V I_C = 500 mA, V_{CE} = 5 V I_C = 1A, V_{CE} = 5 V	25,000 15,000 4000	 40,000	-
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	I_C = 200 mA, I_B = 2 mA I_C = 1 A, I_B = 2 mA		1.0 1.5	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	I_C = 1 A, I_B = 2 mA		2	V
$V_{BE(on)}$	Base-Emitter On Voltage	I_C = 1 A, V_{CE} = 5.0 V		2	V
SMALL SIGNAL CHARACTERISTICS					
C_{cb}	Output Capacitance	V_{CB} = 10 V, I_E = 0, f = 1MHz		10	pF
h_{fe}	Small Signal Current Gain	I_C = 200 mA,V_{CE} = 5 V, f=100MHz	1	10	-

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

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