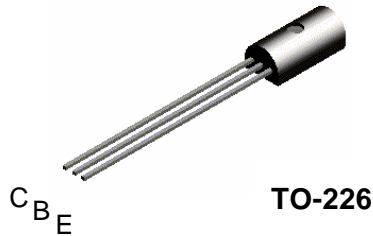


**TN6725A**



**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<sub>A</sub> = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V <sub>CES</sub>	Collector-Emitter Voltage	50	V
V <sub>CBO</sub>	Collector-Base Voltage	60	V
V <sub>EBO</sub>	Emitter-Base Voltage	12	V
I <sub>C</sub>	Collector Current - Continuous	1.2	A
T <sub>J, Tstg</sub>	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<sub>A</sub> = 25°C unless otherwise noted

Symbol	Characteristic	Max	Units
		TN6725A	
P <sub>D</sub>	Total Device Dissipation Derate above 25°C	1	W
		8	mW/°C
R <sub>θJC</sub>	Thermal Resistance, Junction to Case	50	°C/W
R <sub>θJA</sub>	Thermal Resistance, Junction to Ambient	125	°C/W

**NPN Darlington Transistor**

(continued)

**Electrical Characteristics**

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

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

\*Pulse Test: Pulse Width  $\leq 300 \mu\text{s}$ , Duty Cycle  $\leq 1.0\%$

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