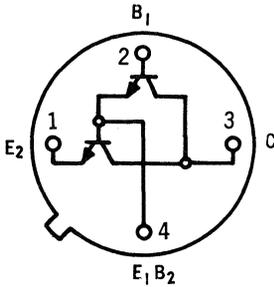


2N2723 thru 2N2725 (SILICON)



CASE 20 (8)
(TO-72)

Two NPN silicon annular transistors connected as a darlington amplifier, and designed for applications requiring very high gain.



MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Rating	Symbol	2N2723 2N2724	2N2725	Unit
Collector Emitter Voltage	V_{CE2O}	60	45	Vdc
Collector-Base Voltage	V_{CB1}	80	45	Vdc
Emitter-Base Voltage	V_{E2B1}	12	10	Vdc
Collector Current	I_C	40	30	mAdc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	0.5		Watt
		2.9		mW/ $^\circ\text{C}$
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ $T_C = 100^\circ\text{C}$ Derate above 25°C	P_D	1.8		Watts
		1.0		Watt
		10.5		mW/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200		$^\circ\text{C}$

2N2723 thru 2N2725 (continued)

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit	
OFF CHARACTERISTICS					
Collector-Emitter Breakdown Voltage (1) (I _C = 10 mA _{dc} , I _{B1} = 0)	2N2723, 2N2724 2N2725	BV _{CE2O}	60 45	- -	V _{dc}
Collector-Base Breakdown Voltage (I _C = 10 μA _{dc} , I _{E2} = 0)	2N2723, 2N2724 2N2725	BV _{CB1O}	80 45	- -	V _{dc}
Emitter-Base Breakdown Voltage (I _{E2} = 10 μA _{dc} , I _C = 0)	2N2723, 2N2724 2N2725	BV _{E2B1O}	12 10	- -	V _{dc}
Collector Cutoff Current (V _{CB1} = 60 V _{dc} , I _E = 0)	2N2723, 2N2724	I _{CB1O}	-	0.01	μA _{dc}
(V _{CB1} = 60 V _{dc} , I _E = 0, T _A = 150°C)	2N2723, 2N2724		-	10	
(V _{CB1} = 30 V _{dc} , I _E = 0)	2N2725		-	0.002	
(V _{CB1} = 30 V _{dc} , I _E = 0, T _A = 150°C)	2N2725		-	2.0	
Emitter Cutoff Current (V _{B1E2} = 10 V _{dc} , I _C = 0)	2N2723, 2N2724	I _{E2B1O}	-	10	nA _{dc}
(V _{B1E2} = 6.0 V _{dc} , I _C = 0)	2N2725		-	1.0	
ON CHARACTERISTICS					
DC Current Gain (I _C = 10 mA _{dc} , V _{CE2} = 5.0 V _{dc} , I _{B2} = 0)	2N2723 2N2724 2N2725	h _{FE}	2000 7000	10,000 50,000	-
(I _C = 100 μA _{dc} , V _{CE2} = 5.0 V _{dc} , I _{B2} = 0)	2N2725		2000	10,000	
Collector-Emitter Saturation Voltage (I _C = 10 mA _{dc} , I _{B1} = 1.0 mA _{dc})		V _{CE2(sat)}	-	1.0	V _{dc}
Base-Emitter Saturation Voltage (I _C = 10 mA _{dc} , I _{B1} = 1.0 mA _{dc})		V _{BE2(sat)}	-	1.7	V _{dc}
SMALL-SIGNAL CHARACTERISTICS					
Current-Gain-Bandwidth Product (Each Unit) (I _C = 10 mA _{dc} , V _{CE1} or V _{CE2} = 10 V _{dc} , f = 20 MHz)		f _T	100	-	MHz
Output Capacitance (V _{CB1} = 10 V _{dc} , I _{E2} = 0, f = 140 kHz)	2N2723, 2N2724	C _{ob1}	-	10	pF
Small-Signal Current Gain (I _C = 10 mA _{dc} , V _{CE2} = 5.0 V _{dc} , f = 1.0 kHz)	2N2723 2N2724	h _{fe}	1500 5000	15,000 60,000	-
(I _C = 10 μA _{dc} , V _{CE2} = 5.0 V _{dc} , f = 1.0 kHz)	2N2725		1500	15,000	
Noise Figure (Input Stage Only) (I _C = 50 μA _{dc} , V _{CE} = 5.0 V _{dc} , R _S = 3.0 k ohms, f = 1.0 kHz, BW = 100 kHz)	2N2723	NF	-	10	dB
(I _C = 10 μA _{dc} , V _{CE} = 5.0 V _{dc} , R _S = 10 k ohms, f = 1.0 kHz, BW = 100 kHz)	2N2724		-	6.0	
(I _C = 3.0 μA _{dc} , V _{CE} = 5.0 V _{dc} , R _S = 30 k ohms, f = 1.0 kHz, BW = 100 kHz)	2N2725		-	6.0	

(1) Pulse Test: Pulse Width ≤ 12 ms, Duty Cycle ≤ 2.0 %.