

### MAXIMUM RATINGS

Rating	Symbol	Value		Unit
Collector-Emitter Voltage	V <sub>CEO</sub>	45		Vdc
Collector-Base Voltage	V <sub>CBO</sub>	45		Vdc
Emitter-Base Voltage	V <sub>EBO</sub>	5.0		Vdc
Base Current	I <sub>B</sub>	100		mAdc
Collector Current — Continuous	I <sub>C</sub>	300		mAdc
		One Die	Both Die	
Total Device Dissipation @ T <sub>A</sub> = 25°C Derate above 25°C	P <sub>D</sub>	400 2.29	500 2.86	mW mW/°C
Total Device Dissipation @ T <sub>C</sub> = 25°C Derate above 25°C	P <sub>D</sub>	0.85 4.85	1.4 8.0	Watt mW/°C
Operating and Storage Junction Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	-65 to +200		°C
Collector <sub>1</sub> to Collector <sub>2</sub> Voltage Voltage rating any lead to case	V <sub>C1</sub> V <sub>C2</sub>	±200 ±200		Vdc Vdc

# 2N3726 2N3727

CASE 654-07, STYLE 1

DUAL  
AMPLIFIER TRANSISTOR

PNP SILICON

Refer to MD2905,A for graphs.

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### ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C unless otherwise noted.)

Characteristic	Symbol	Min	Max	Unit
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#### OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage(1) (I <sub>C</sub> = 10 mAdc, I <sub>B</sub> = 0)	V <sub>(BR)CEO</sub>	45	—	Vdc
Collector-Base Breakdown Voltage (I <sub>C</sub> = 0.01 mAdc, I <sub>E</sub> = 0)	V <sub>(BR)CBO</sub>	45	—	Vdc
Emitter-Base Breakdown Voltage (I <sub>E</sub> = 0.01 mAdc, I <sub>C</sub> = 0)	V <sub>(BR)EBO</sub>	5.0	—	Vdc
Collector Cutoff Current (V <sub>CB</sub> = 30 Vdc, I <sub>E</sub> = 0) (V <sub>CB</sub> = 30 Vdc, I <sub>E</sub> = 0, T <sub>A</sub> = 150°C)	I <sub>CBO</sub>	—	10 10	nAdc μAdc
Emitter Cutoff Current (V <sub>BE</sub> = 3.0 Vdc, I <sub>C</sub> = 0)	I <sub>EBO</sub>	—	0.1	μAdc

#### ON CHARACTERISTICS

DC Current Gain (I <sub>C</sub> = 0.01 mAdc, V <sub>CE</sub> = 5.0 Vdc) (I <sub>C</sub> = 0.1 mAdc, V <sub>CE</sub> = 5.0 Vdc) (I <sub>C</sub> = 1.0 mAdc, V <sub>CE</sub> = 5.0 Vdc) (I <sub>C</sub> = 50 mAdc, V <sub>CE</sub> = 5.0 Vdc)(1)	h <sub>FE</sub>	80 120 135 115	— — 350 —	—
Collector-Emitter Saturation Voltage(1) (I <sub>C</sub> = 50 mAdc, I <sub>B</sub> = 2.5 mAdc)	V <sub>CE(sat)</sub>	—	0.25	Vdc
Base-Emitter Saturation Voltage(1) (I <sub>C</sub> = 50 mAdc, I <sub>B</sub> = 2.5 mAdc)	V <sub>BE(sat)</sub>	—	1.0	Vdc

#### SMALL-SIGNAL CHARACTERISTICS

Current-Gain — Bandwidth Product(2) (I <sub>C</sub> = 1.0 mAdc, V <sub>CE</sub> = 10 Vdc, f = 20 MHz) (I <sub>C</sub> = 50 mAdc, V <sub>CE</sub> = 20 Vdc, f = 100 MHz)	f <sub>T</sub>	60 200	— 600	MHz
Output Capacitance (V <sub>CB</sub> = 10 Vdc, I <sub>E</sub> = 0, f = 1.0 MHz)	C <sub>obo</sub>	—	8.0	pF
Input Capacitance (V <sub>EB</sub> = 0.5 Vdc, I <sub>C</sub> = 0, f = 1.0 MHz)	C <sub>ibo</sub>	—	30	pF
Input Impedance (I <sub>C</sub> = 1.0 mAdc, V <sub>CE</sub> = 10 Vdc, f = 1.0 kHz)	h <sub>ie</sub>	—	11.5	kohm
Voltage Feedback Ratio (I <sub>C</sub> = 1.0 mAdc, V <sub>CE</sub> = 10 Vdc, f = 1.0 kHz)	h <sub>re</sub>	—	1500	X 10 <sup>-6</sup>
Small-Signal Current Gain (I <sub>C</sub> = 1.0 mAdc, V <sub>CE</sub> = 10 Vdc, f = 1.0 kHz)	h <sub>fe</sub>	135	420	—

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**ELECTRICAL CHARACTERISTICS** (continued) ( $T_A = 25^\circ\text{C}$  unless otherwise noted.)

Characteristic	Symbol	Min	Max	Unit
Output Admittance ( $I_C = 1.0 \text{ mA dc}$ , $V_{CE} = 10 \text{ V dc}$ , $f = 1.0 \text{ kHz}$ )	$h_{oe}$	—	80	$\mu\text{mhos}$
Noise Figure ( $I_C = 30 \mu\text{A dc}$ , $V_{CE} = 5.0 \text{ V dc}$ , $R_S = 10 \text{ kohms}$ , $f = 1.0 \text{ kHz}$ , B.W. = 200 Hz)	NF	—	4.0	dB

**MATCHING CHARACTERISTICS**

DC Current Gain Ratio(3) ( $I_C = 0.1 \text{ mA dc}$ to $1.0 \text{ mA dc}$ , $V_{CE} = 5.0 \text{ V dc}$ )	$h_{FE1}/h_{FE2}$	0.9	1.0	—
Base-Emitter Voltage Differential ( $I_C = 0.1 \text{ mA dc}$ to $1.0 \text{ mA dc}$ , $V_{CE} = 5.0 \text{ V dc}$ )	$ V_{BE1} - V_{BE2} $	—	5.0 2.5	mVdc
Base-Emitter Differential Change Due to Temperature ( $I_C = 0.1 \text{ mA dc}$ to $1.0 \text{ mA dc}$ , $V_{CE} = 5.0 \text{ V dc}$ , $T_A = -55^\circ\text{C}$ to $+25^\circ\text{C}$ )	$\Delta(V_{BE1} - V_{BE2})$	—	1.6 0.8	mVdc
( $I_C = 0.1 \text{ mA dc}$ to $1.0 \text{ mA dc}$ , $V_{CE} = 5.0 \text{ V dc}$ , $T_A = +25^\circ\text{C}$ to $+125^\circ\text{C}$ )		—	2.0 1.0	

- (1) Pulse Test: Pulse Width  $\leq 300 \mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ .
- (2)  $f_T$  is defined as the frequency at which  $|h_{fe}|$  extrapolates to unity.
- (3) For purposes of this ratio, the lowest  $h_{FE}$  reading is taken as  $h_{FE1}$ .

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