

TRANSISTOR ARRAY

μ PA2001C, μ PA2002C, μ PA2003C, μ PA2004C

NPN SILICON EPITAXIAL DARLINGTON TRANSISTOR ARRAY

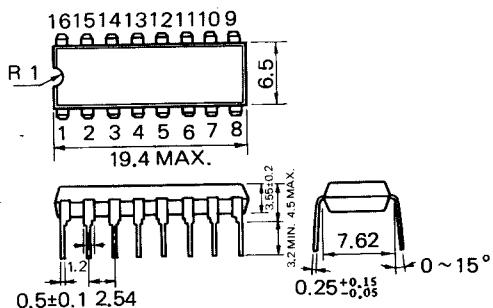
DESCRIPTION

The μ PA2001C, 2002C, 2003C and 2004C are monolithic arrays of seven darlington transistors.

These devices are especially suited for driving relays, solenoids, LED, lamps, and other devices with up to 0.3 A output current per unit.

PACKAGE DIMENSIONS

in millimeters



FEATURES

- Transient Protected Outputs
- High DC Current Gain
- High Output Drive Current
- High Output Voltage
- Package is 16 pin PLASTIC DIP

Single Copy

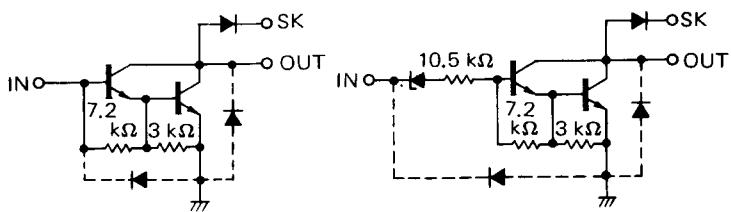
Handle With Care

65 VLS ORIG
003535

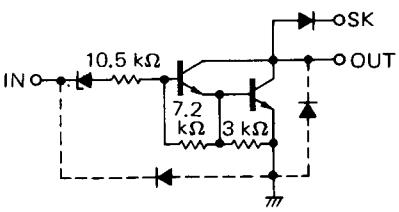
NEC

EQUIVALENT CIRCUIT (1 Unit)

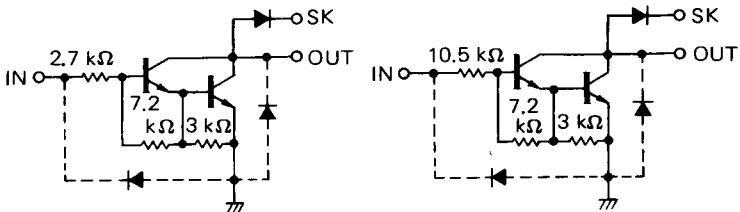
μ PA2001C



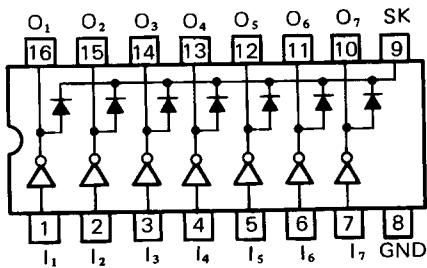
μ PA2002C



μ PA2003C



CONNECTION DIAGRAM (Top View)



- I : Input (Base)
O : Output (Collector)
GND : (Common Emitter)
SK : Surge Killer

ABSOLUTE MAXIMUM RATINGS

Maximum Voltages and Currents ($T_a = 25^\circ\text{C}$)

Output Voltage	V_O	60	V
Input Voltage (except $\mu\text{PA}2001\text{C}$)	V_I	-0.5 to +30	V
Input Current (only $\mu\text{PA}2001\text{C}$)	I_I	25	mA/unit
Output Current	I_O	500	mA/unit
Output Current	I_O^*	2.3	A/package
Reverse Voltage (Clamp Diode)	V_R	60	V
Forward Current (Clamp Diode)	I_F	500	mA/unit
Maximum Power Dissipation			
Total Power Dissipation	P_d	900	mW/package
Total Power Dissipation	P_d^*	2.5	W/package
Maximum Temperature			
Operating Temperature	T_{opt}	-30 to + 75	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

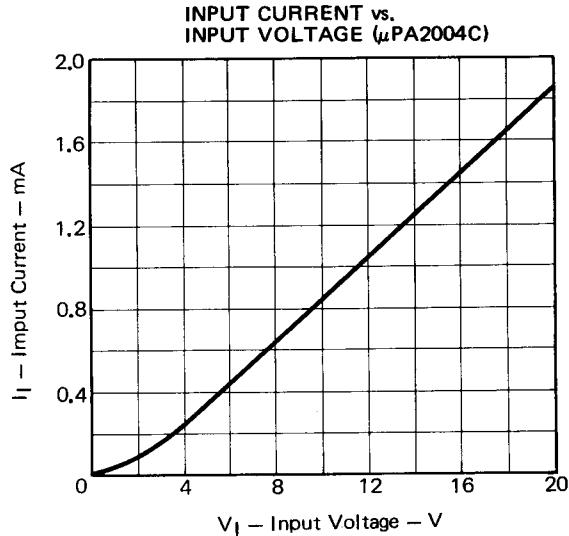
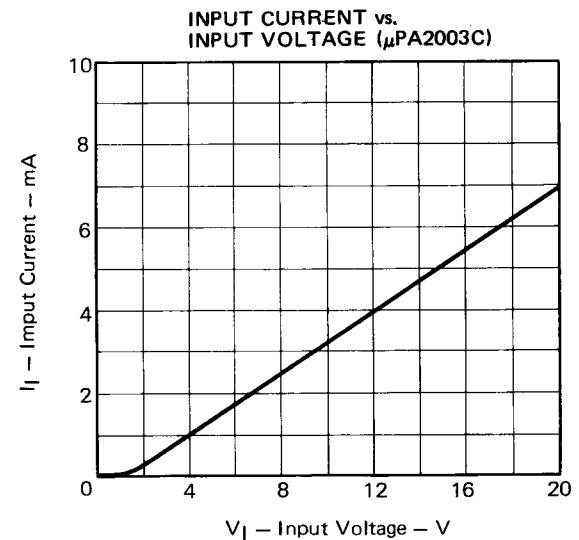
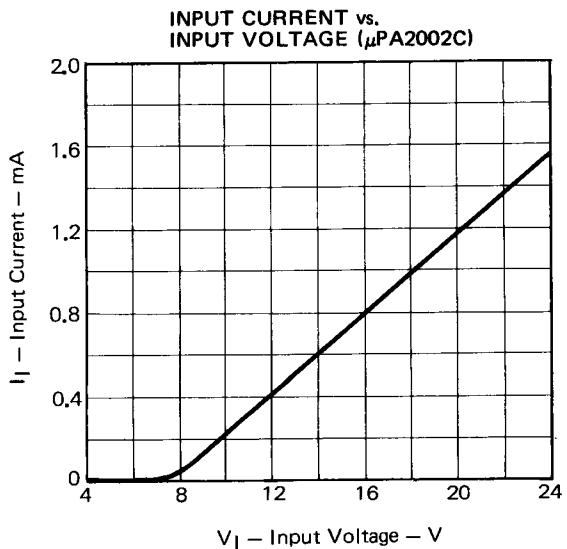
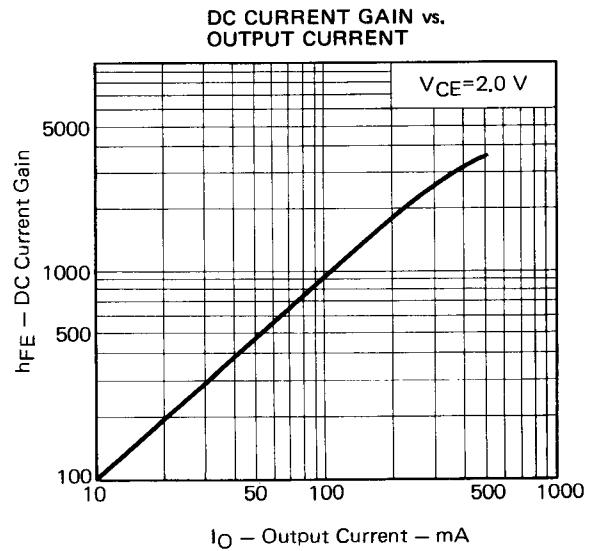
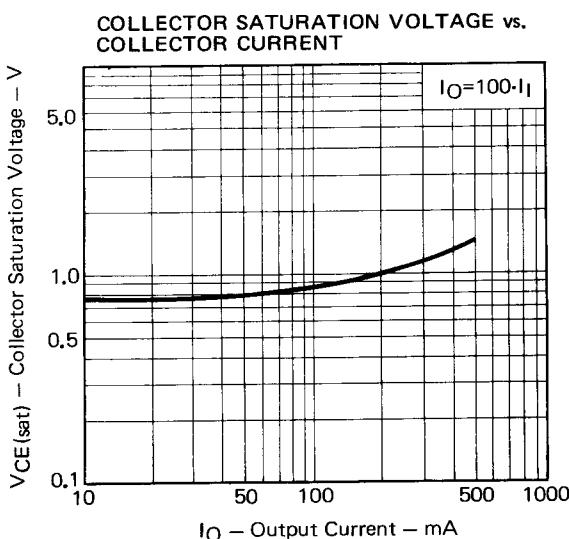
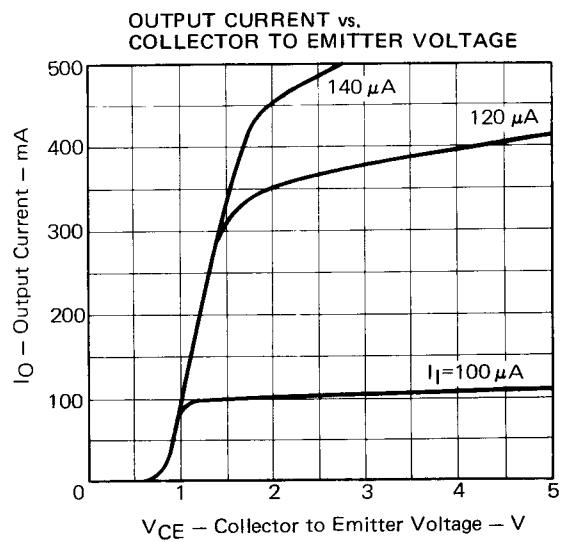
* $PW \leq 20 \text{ ms}$, duty cycle $\leq 10\%$

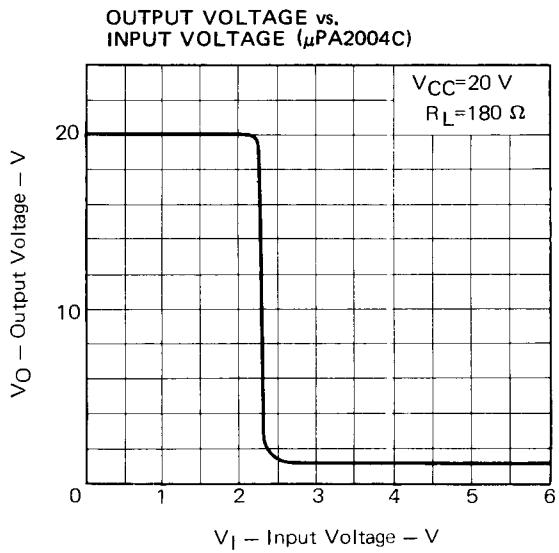
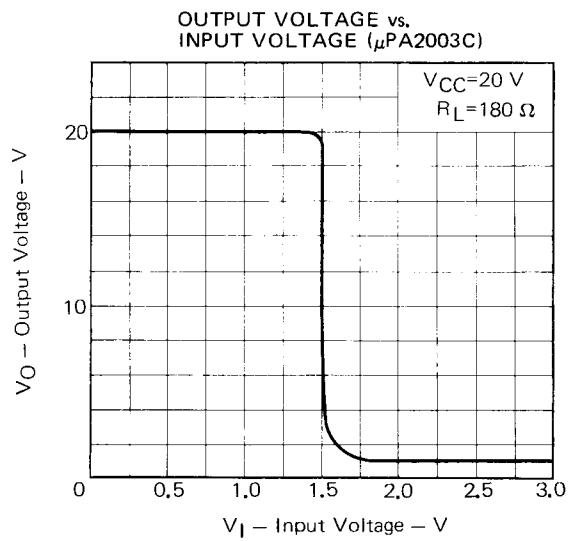
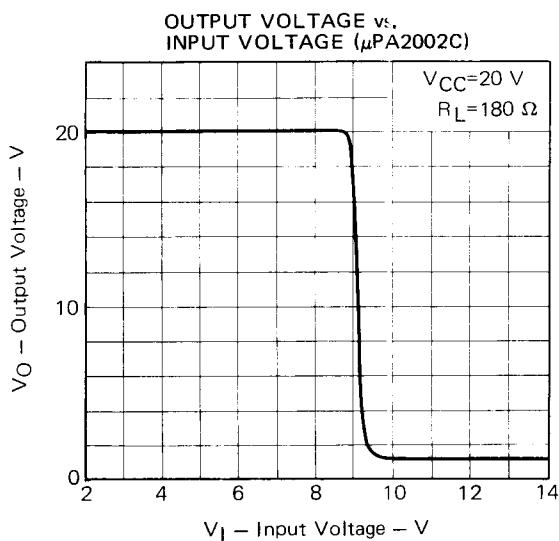
ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Output Leakage Current	I_L			10	μA	$V_{CE}=50 \text{ V}$
				100	μA	$V_{CE}=50 \text{ V}, T_a=70^\circ\text{C}$
DC Current Gain	h_{FE}	1000	2800			$V_{CE}=2.0 \text{ V}, I_O=350 \text{ mA}$
Collector Saturation Voltage	$V_{CE(\text{sat})}$		0.9	1.1	V	$I_O=100 \text{ mA}, I_I=250 \mu\text{A}$
			1.0	1.3	V	$I_O=200 \text{ mA}, I_I=350 \mu\text{A}$
			1.2	1.6	V	$I_O=350 \text{ mA}, I_I=500 \mu\text{A}$
Input Voltage	V_I			11	V	$V_{CE}=2.0 \text{ V}, I_O=100 \text{ mA}$
				12	V	$V_{CE}=2.0 \text{ V}, I_O=200 \text{ mA}$
				13.5	V	$V_{CE}=2.0 \text{ V}, I_O=350 \text{ mA}$
				2.0	V	$V_{CE}=2.0 \text{ V}, I_O=100 \text{ mA}$
				2.4	V	$V_{CE}=2.0 \text{ V}, I_O=200 \text{ mA}$
				3.4	V	$V_{CE}=2.0 \text{ V}, I_O=350 \text{ mA}$
				5.0	V	$V_{CE}=2.0 \text{ V}, I_O=100 \text{ mA}$
				6.0	V	$V_{CE}=2.0 \text{ V}, I_O=200 \text{ mA}$
				8.0	V	$V_{CE}=2.0 \text{ V}, I_O=350 \text{ mA}$
Input Current	I_I			1.3	mA	$V_I=17 \text{ V}$
				1.35	mA	$V_I=3.85 \text{ V}$
				1.0	mA	$V_I=5.0 \text{ V}$
Reverse Current (Clamp Diode)	I_R			50	μA	$V_R=50 \text{ V}$
Forward Voltage (Clamp Diode)	V_F			2.0	V	$I_F=350 \text{ mA}$
Terminal Capacitance	C_t		15		pF	$V_I=0, f=1.0 \text{ MHz}$

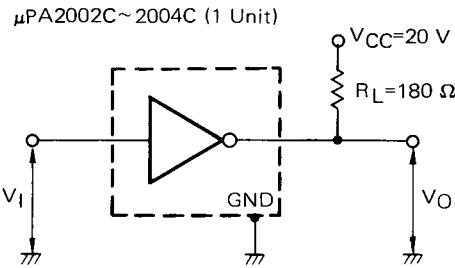
Note: Input Voltage and Current of the $\mu\text{PA}2001\text{C}$ depend on external resistor.

TYPICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)





VO-VI TEST CIRCUIT



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