

NEC
ELECTRON DEVICE

POWER TRANSISTOR ARRAY

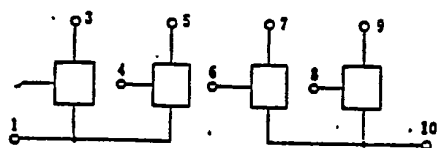
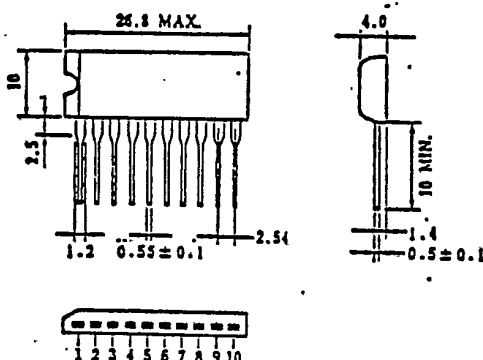
μ PA1457H

PNP SILICON EPITAXIAL POWER TRANSISTOR ARRAY
LOW SPEED SWITCHING (DARLINGTON)

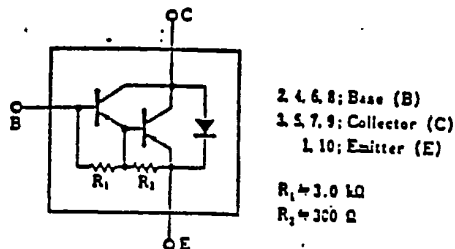
DESCRIPTION

The μ PA1457H is an array of four darlington power transistors. It is especially designed for applications demand for high peak current capability. It is suitable for driving actuators such as solenoids, motors, relays and lamps.

PACKAGE DIMENSIONS(Unit:mm) AND INTERNAL CONNECTIONS



EQUIVALENT CIRCUIT(1 Unit)



FEATURES

- High h_{FE} (Darlington)
- High peak current capability
- Easy to mount on plastic substrates
- Able to use with high-density mounting
- Built-in Zener Diode

between Collector and Base

ABSOLUTE MAXIMUM RATINGS($T_a=25^\circ\text{C}$)

Collector to Base Voltage	V_{CB0}	-100V
Collector to Emitter Voltage	V_{CE0}	-100V
Emitter to Base Voltage	V_{EB0}	-7.0V
Collector Current(DC)	$I_C(\text{DC})$	$\pm 5.0\text{A/unit}$
Collector Current(pulse)	$I_C(\text{pulse})$	$\pm 10\text{A/unit}$
Base Current(DC)	$I_B(\text{DC})$	-0.5A/unit
Total Power Dissipation	P_{T**}	3.5W
Total Power Dissipation	P_{T***}	28W
Junction Temperature	T_J	150 $^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to +150 $^\circ\text{C}$

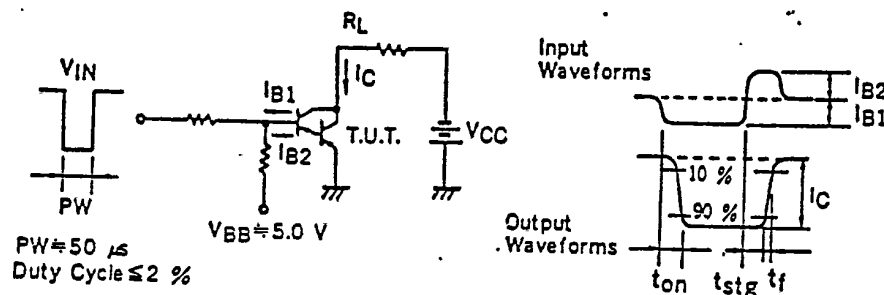
* $PW \leq 300 \mu\text{s}$, Duty Cycle $\leq 10\%$

** When all units are used, $T_a=25^\circ\text{C}$

*** When all units are used, $T_c=25^\circ\text{C}$

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

ITEM	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	I_{CBO}			-10	μA	$V_{CB} = -100\text{V}, I_E = 0$
Emitter Cutoff Current	I_{EBO}			-10	mA	$V_{EB} = -5.0\text{V}, I_C = 0$
DC Current Gain	h_{FE1}^*	2000	5000	20000	-	$V_{CE} = -2.0\text{V}, I_C = -2.0\text{A}$
DC Current Gain	h_{FE2}^*	500	3000		-	$V_{CE} = -2.0\text{V}, I_C = -4.0\text{A}$
Collector to Emitter Saturation Voltage	$V_{CE(sat)}^*$	-1.0	-1.5		V	$I_C = -2.0\text{A}, I_B = -2.0\text{mA}$
Base to Emitter Saturation Voltage	$V_{BE(sat)}^*$	-1.6	-2.0		V	$I_C = -2.0\text{A}, I_B = -2.0\text{mA}$
Turn-On Time	t_{on}		1.0		μs	$I_C = -2.0\text{A}$
Storage Time	t_{stg}		3.0		μs	$I_{B1} = -I_{B2} = -2.0\text{mA}$
Fall Time	t_f		1.0		μs	$R_L = 25\ \Omega, V_{CC} = -50\text{V}$ See Test Circuit.

*Pulsed/ $PW \leq 350\ \mu\text{s}$, Duty Cycle $\leq 2\%$ SWITCHING TIME (t_{on}, t_{stg}, t_f) TEST CIRCUIT

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