

General purpose (dual digital transistors)

UMD6N / IMD6A

●Features

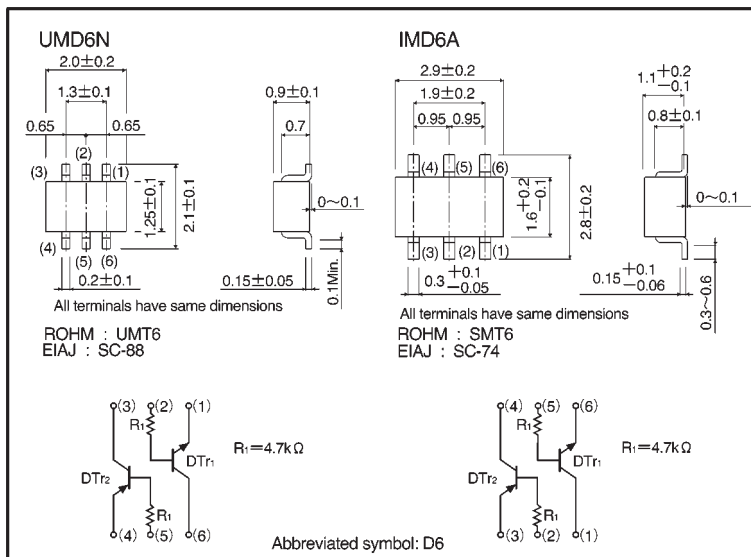
- 1) Both the DTA143T chip and DTC143T chip in a UMT or SMT package.
- 2) Mounting possible with UMT3 or SMT3 automatic mounting machines.
- 3) Transistor elements are independent, eliminating interference.
- 4) Mounting cost and area can be cut in half.

●Structure

A PNP and a NPN digital transistor (each with a single built in resistor)

The following characteristics apply to both DTr₁ and DTr₂, however, the “-” sign on DTr₂ values for the PNP type have been omitted.

●External dimensions (Units: mm)



●Absolute maximum ratings (Ta = 25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V _{CBO}	50	V
Collector-emitter voltage	V _{CEO}	50	V
Emitter-base voltage	V _{EBO}	5	V
Collector current	I _c	100	mA
Collector power dissipation	UMD6N	150 (TOTAL)	mW *1
	IMD6A	300 (TOTAL)	mW *2
Junction temperature	T _j	150	°C
Storage temperature	T _{stg}	-55~+150	°C

*1 120mW per element must not be exceeded.

*2 200mW per element must not be exceeded.

●Electrical characteristics (Ta = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	50	—	—	V	$I_C=50\mu A$
Collector-emitter breakdown voltage	BV_{CEO}	50	—	—	V	$I_C=1mA$
Emitter-base breakdown voltage	BV_{EBO}	5	—	—	V	$I_E=50\mu A$
Collector cutoff current	I_{CBO}	—	—	0.5	μA	$V_{CB}=50V$
Emitter cutoff current	I_{EBO}	—	—	0.5	μA	$V_{EB}=4V$
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	—	0.3	V	$I_C/I_B=5mA/0.25mA$
DC current transfer ratio	h_{FE}	100	250	600	—	$V_{CE}=5V, I_C=1mA$
Transition frequency	f_T	—	250	—	MHz	$V_{CE}=10mA, I_E=-5mA, f=100MHz$ *
Input resistance	R_1	3.29	4.7	6.11	k Ω	—

* Transition frequency of the transistor

●Packaging specifications

Part No.	Packaging type	Taping	
	Code	TR	T108
	Basic ordering unit (pieces)	3000	3000
UMD6N		○	—
IMD6A		—	○

●Electrical characteristic curves

DT_{r1} (NPN)

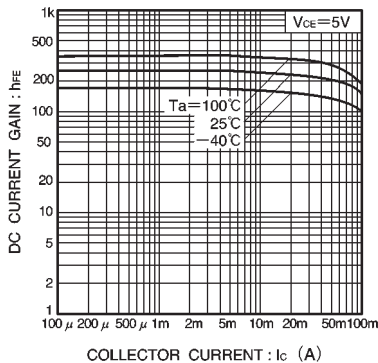


Fig.1 DC current gain vs. collector current

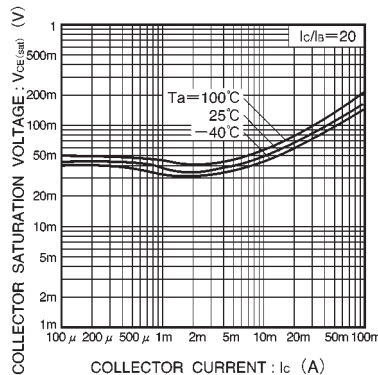


Fig.2 Collector-emitter saturation voltage vs. collector current

DTr₂ (PNP)

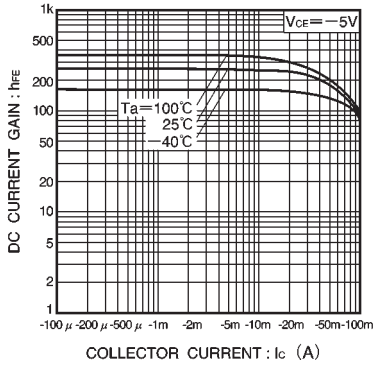


Fig.3 DC current gain vs. collector current

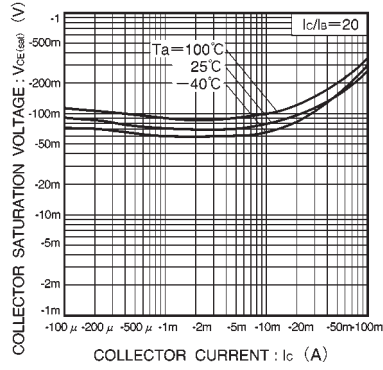


Fig.4 Collector-emitter saturation voltage vs. collector current