

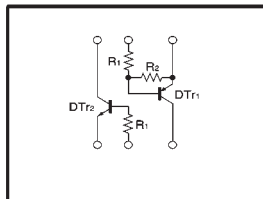
Power management (dual digital transistors)

IMD10A

●Features

- 1) Two digital transistors in a SMT package.
- 2) Up to 500mA can be driven.
- 3) Low $V_{ce(sat)}$ of drive transistors for low power dissipation.

●Circuit diagram



●Package, marking, and packaging specifications

Part No.	IMD10A
Package	SMT6
Marking	D10
Code	T108
Basic ordering unit (pieces)	3000

●Electrical characteristics (Ta=25°C)

DTTr1

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage	$V_{i(off)}$	—	—	-0.3	V	$V_{cc} = -5V, I_c = -100 \mu A$
	$V_{i(on)}$	-1.5	—	—		$V_o = -0.3V, I_c = -100mA$
Output voltage	$V_{o(on)}$	—	-0.1	-0.3	V	$I_o = -100mA, I_i = -5mA$
Input current	I_i	—	—	-25	mA	$V_i = -2V$
Output current	$I_{o(off)}$	—	—	-0.5	μA	$V_{cc} = -50V, V_i = 0V$
DC current gain	G_i	68	—	—	—	$I_o = -100mA, V_o = -5V$
Transition frequency	f_T	—	200	—	MHz	$V_{ce} = -10V, I_e = 50mA, f = 100MHz$ *
Input resistance	R_i	70	100	130	Ω	—
Resistance ratio	R_2/R_1	80	100	120	—	—

* Transition frequency of the device.

DTTr2

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	$V_{ce} = 50V$
Emitter cutoff current	I_{ebo}	—	—	0.5	μA	$V_{eb} = 4V$
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	—	0.3	V	$I_c = 10mA, I_e = 1mA$
DC current transfer ratio	h_{FE}	100	250	600	—	$V_{ce} = 5V, I_c = 1mA$
Transition frequency	f_T	—	250	—	MHz	$V_{ce} = 10V, I_e = -5mA, f = 100MHz$ *
Input resistance	R_i	7	10	13	k Ω	—

* Transition frequency of the device.

●Absolute maximum ratings (Ta=25°C)

DTTr1

Parameter	Symbol	Limits	Unit
Supply voltage	V_{cc}	-50	V
Input voltage	V_{in}	-5~+5	V
Collector current	I_c	-500	mA

DTTr2

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

Total

Parameter	Symbol	Limits	Unit
Power dissipation	P_d	300 (TOTAL)	mW *
Storage temperature	T_{stg}	-55~+150	°C

* 200mW per element must not be exceeded.