

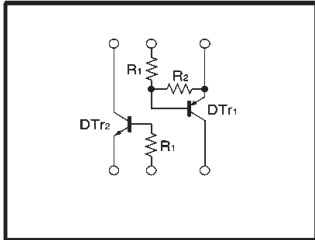
# Power management (dual digital transistors)

## 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)

DTr1

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage	$V_{I(off)}$	—	—	-0.3	V	$V_{CC} = -5V, I_O = -100 \mu A$
	$V_{I(on)}$	-1.5	—	—	V	$V_O = -0.3V, I_O = -100mA$
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	$\mu A$	$V_{CC} = -50V, V_I = 0V$
DC current gain	$G_I$	68	—	—	—	$I_O = -100mA, V_O = -5V$
		—	200	—	—	$V_{CE} = -10V, I_E = 50mA, f = 100MHz$ *
Transition frequency	$f_T$	—	200	—	MHz	—
Input resistance	$R_I$	70	100	130	$\Omega$	—
Resistance ratio	$R_2/R_1$	80	100	120	—	—

\* Transition frequency of the device.

DTr2

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	$\mu A$	$V_{CB} = 50V$
Emitter cutoff current	$I_{EBO}$	—	—	0.5	$\mu A$	$V_{EB} = 4V$
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	—	0.3	V	$I_C = 10mA, I_B = 1mA$
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 $\Omega$	—

\* Transition frequency of the device.

●Absolute maximum ratings (Ta=25°C)

DTr1

Parameter	Symbol	Limits	Unit
Supply voltage	$V_{CC}$	-50	V
Input voltage	$V_{IN}$	-5~+5	V
Collector current	$I_C$	-500	mA

DTr2

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.