

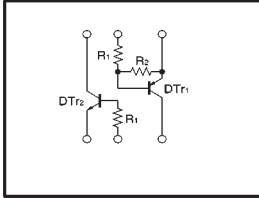
Power management (dual digital transistors)

IMD16A

●Features

- 1) Two digital class 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 and hFE

Part No.	IMD16A
Package	SMT6
Marking	D16
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	$V_{CC} = -5V, I_O = -100 \mu A$
	$V_{I(on)}$	-2	—	—		$V_O = -0.3V, I_O = -20mA$
Output voltage	$V_{O(on)}$	—	—	-0.3	V	$I_O/I_i = -50mA / -2.5mA$
Input current	I_i	—	—	-3	mA	$V_i = -5V$
Output current	$I_{O(off)}$	—	—	-0.5	μA	$V_{CC} = -50V, V_i = 0V$
DC current gain	G_i	82	—	—	—	$I_O = -50mA, V_O = -5V$ *1
Transition frequency	f_T	—	250	—	MHz	$V_{CE} = -10V, I_E = 50mA, f = 100MHz$ *2
Input resistance	R_1	1.54	2.2	2.86	k Ω	—
Resistance ratio	R_2/R_1	8	10	12	—	—

*1 Measured using pulse current. *2 Transition frequency of mounted transistor.

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	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	$I_C/I_E = 1mA/0.1mA$
DC current transfer ratio	h_{FE}	100	250	600	—	$V_{CE} = 5V, I_C = 1mA$
Transition frequency	f_T	—	250	—	MHz	$V_{CE} = 10V, I_C = -5mA, f = 100MHz$ *
Input resistance	R_1	70	100	130	k Ω	—

* Transition frequency of mounted transistor.

●Absolute maximum ratings (Ta=25°C)

DTr1 (PNP)

Parameter	Symbol	Limits	Unit
Supply voltage	V_{CC}	-50	V
Input voltage	V_{IN}	-12	V
		5	
Output current	I_C	-500	mA

DTr2 (NPN)

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
Collector power dissipation	P_d	300 (TOTAL)	mW *
Junction temperature	T_J	150	°C
Storage temperature	T_{stg}	-55~+150	°C

* 200mW per element must not be exceeded.