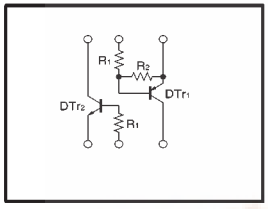
Power management (dual digital transistors)
IMD16A

●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 h_{FE}

Part No.	IMD16A
Package	SMT6
Marking	D16
Code	T108
Basic ordering unit (pieces)	3000

●Absolute maximum ratings (Ta=25℃)

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	Pd	300 (TOTAL)	mW	*
Junction temperature	Tj	150	℃	
Storage temperature	Tstg	−55~+150	℃	

* 200mW per element must not be exceeded.

●Electrical characteristics (Ta=25℃)

DTr1

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions	
Input voltage	$V_{I(off)}$	—	—	−0.3	V	V_{CC}=−5V , I_O=−100μA	
	$V_{I(on)}$	−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	fT	—	250	—	MHz	V_{CE}=−10V , I_E=50mA , f=100MHz	*2
Input resistance	R_1	1.54	2.2	2.86	kΩ	—	
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=50μA	
Collector-emitter breakdown voltage	BV_{CEO}	50	—	—	V	I_C=1mA	
Emitter-base breakdown voltage	BV_{EBO}	5	—	—	V	I_E=50μA	
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=1mA/0.1mA	
DC current transfer ratio	h_{FE}	100	250	600	—	V_{CE}=5V , I_C=1mA	
Transition frequency	fT	—	250	—	MHz	V_{CE}=10V , I_E=−5mA , f=100MHz	*
Input resistance	R_1	70	100	130	kΩ	—	

*Transition frequency of mounted transistor.