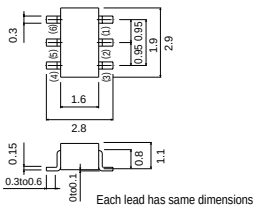
Power management (dual digital transistors)

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.

●External dimensions (Units : mm)

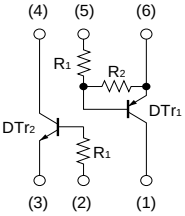


ROHM : SMT6
EIAJ : SC-74

●Package, marking, and packaging specifications

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

●Equivalent circuit



●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	Pd	300(TOTAL)	mW ✻
Junction temperature	Tj	150	°C
Storage temperature	Tstg	−55 ~ +150	°C

✻ 200mW per element must not be exceeded.

●Electrical characteristics (Ta=25°C)

DTr_1

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	f_T	–	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	0.8	1	1.2	–	–

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

DTr_2

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	f_T	–	250	–	MHz	V_{CE}=10V , I_E=–5mA , f=100MHz ＊
Input resistance	R_1	70	100	130	kΩ	–

＊Transition frequency of mounted transistor.

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