

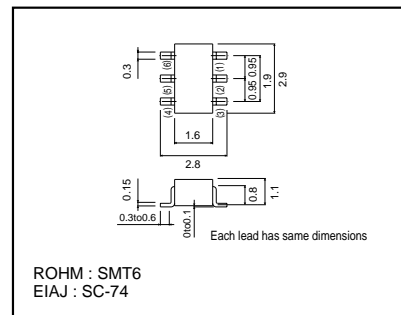
# Power management (dual digital transistors)

## 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.

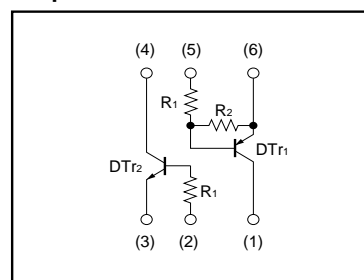
### ●External dimensions (Units : mm)



### ●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)

#### DTTr1 (PNP)

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

#### DTTr2 (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.

## Transistors

## ●Electrical characteristics (Ta=25°C)

DT<sub>r1</sub>

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage	V <sub>I(off)</sub>	–	–	–0.3	V	V <sub>CC</sub> =–5V, I <sub>O</sub> =–100μA
	V <sub>I(on)</sub>	–2	–	–		V <sub>O</sub> =–0.3V, I <sub>O</sub> =–20mA
Output voltage	V <sub>O(on)</sub>	–	–	–0.3	V	I <sub>O</sub> /I <sub>E</sub> =–50mA / –2.5mA
Input current	I <sub>I</sub>	–	–	–3	mA	V <sub>I</sub> =–5V
Output current	I <sub>O(off)</sub>	–	–	–0.5	μA	V <sub>CC</sub> =–50V, V <sub>I</sub> =0V
DC current gain	G <sub>I</sub>	82	–	–	–	I <sub>O</sub> =–50mA, V <sub>O</sub> =–5V *1
Transition frequency	f <sub>T</sub>	–	250	–	MHz	V <sub>CE</sub> =–10V, I <sub>E</sub> =50mA, f=100MHz *2
Input resistance	R <sub>1</sub>	1.54	2.2	2.86	kΩ	–
Resistance ratio	R <sub>2</sub> / R <sub>1</sub>	0.8	1	1.2	–	–

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

DT<sub>r2</sub>

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV <sub>CB0</sub>	50	–	–	V	I <sub>C</sub> =50μA
Collector-emitter breakdown voltage	BV <sub>CE0</sub>	50	–	–	V	I <sub>C</sub> =1mA
Emitter-base breakdown voltage	BV <sub>EB0</sub>	5	–	–	V	I <sub>E</sub> =50μA
Collector cutoff current	I <sub>CB0</sub>	–	–	0.5	μA	V <sub>CB</sub> =50V
Emitter cutoff current	I <sub>EB0</sub>	–	–	0.5	μA	V <sub>EB</sub> =4V
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	–	–	0.3	V	I <sub>C</sub> /I <sub>B</sub> =1mA/0.1mA
DC current transfer ratio	h <sub>FE</sub>	100	250	600	–	V <sub>CE</sub> =5V, I <sub>C</sub> =1mA
Transition frequency	f <sub>T</sub>	–	250	–	MHz	V <sub>CE</sub> =10V, I <sub>E</sub> =–5mA, f=100MHz *
Input resistance	R <sub>1</sub>	70	100	130	kΩ	–

\*Transition frequency of mounted transistor.