# IMD10A

Power management (dual digital transistors)

● **Features**

1) Two digital class transistors in a SMT package.
2) Up to 500mA can be driven.
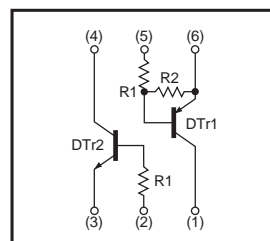3) Low $V_{CE(sat)}$ of drive transistors for low power dissipation.

● **Package, marking, and packaging specifications**

Part No.	IMD10A
Package	SMT6
Marking	D10
Code	T108
Basic ordering unit (pieces)	3000

● **Dimensions** (Unit : mm)

SOT-457
ROHM : SMT6
EIAJ : SC-74

Each lead has same dimensions
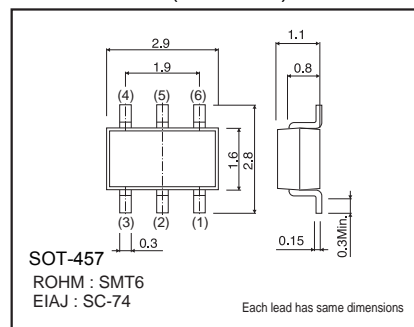
● **Absolute maximum ratings** (Ta=25°C)

● **Equivalent circuit**

DTr₁

Parameter	Symbol	Limits	Unit
Supply voltage	V_{CC}	−50	V
Input voltage	V_{IN}	−5 to +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	Pd	300(TOTAL)	mW	✳
Junction temperature	Tj	150	°C	
Storage temperature	Tstg	−55 to +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$_{I(on)}$	—1.5	—	—		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	μA	V$_{CC}$= —50V , V$_I$=0V
DC current gain	G$_I$	68	—	—	—	I$_O$= —100mA , V$_O$= —5V
Transition frequency	f$_T$	—	200	—	MHz	V$_{CE}$= —10V , I$_E$=50mA , f=100MHz ＊
Input resistance	R$_1$	70	100	130	Ω	—
Resistance ratio	R$_2$ / R$_1$	80	100	120	—	—

＊ Transition frequency of the device.

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$_C$=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$_1$	7	10	13	kΩ	—

＊ Transition frequency of the device.

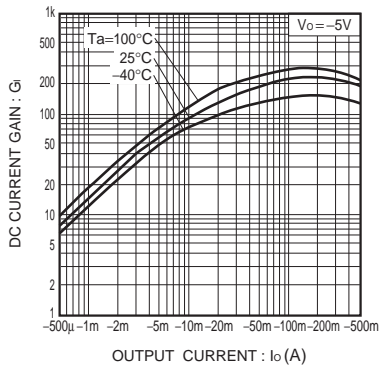●**Electrical characteristic curves**

Fig.1 DC current gain vs.
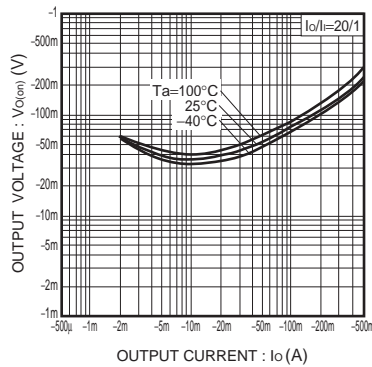Output current characteristics

Fig.2 Output voltage vs.
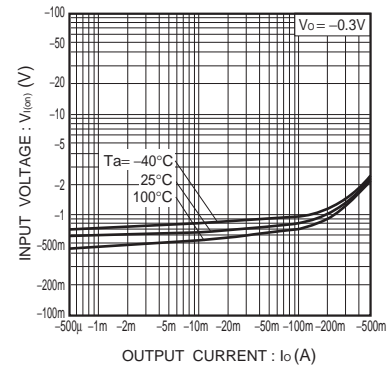Output current characteristics

Fig.3 Input voltage vs. Output current
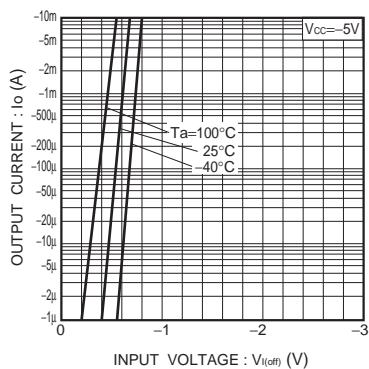(ON characteristics)

Fig.4 Output current vs.
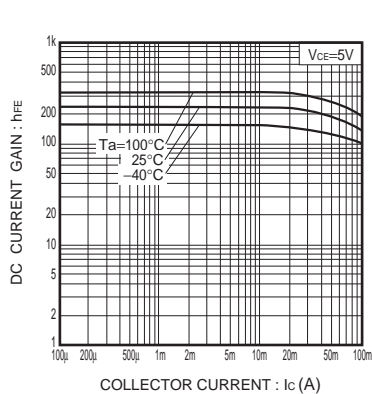Input voltage (OFF characteristics)
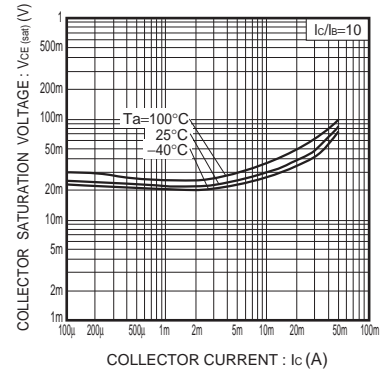

Fig.5 DC current gain vs. Collector current

Fig.6 Collector-emitter saturation voltage
vs. Collector current

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