

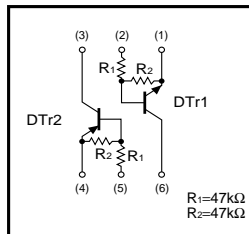
# Power management (dual digital transistors)

## EMD12 / UMD12N

### ●Features

- 1) Both the DTA144E and DTC144E in a EMT or UMT package.

### ●Equivalent circuit



### ●Package, marking, and packaging specifications

Type	EMD12	UMD12N
Package	EMT6	UMT6
Marking	D12	D12
Code	T2R	TR
Basic ordering unit (pieces)	8000	3000

### ●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Supply voltage	V <sub>CC</sub>	50	V
Input voltage	V <sub>IN</sub>	40	V
		-10	
Output current	I <sub>C</sub>	100	mA
	I <sub>O</sub>	30	mA
Power dissipation	P <sub>d</sub>	150(TOTAL)	mW *1
Junction temperature	T <sub>J</sub>	150	°C
Storage temperature	T <sub>stg</sub>	-55~+150	°C

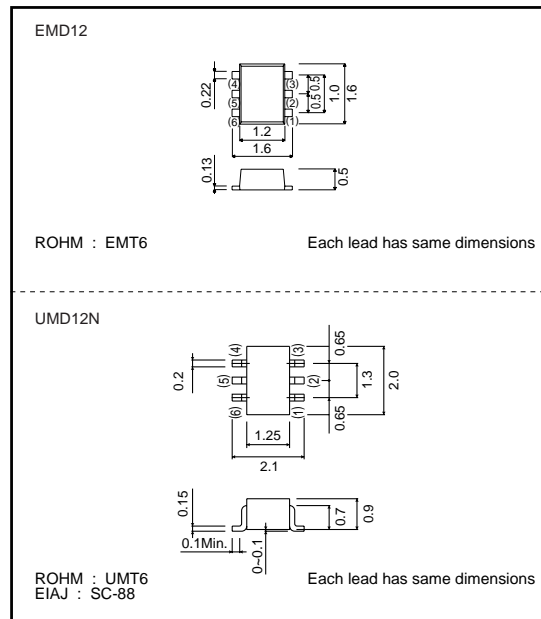
\*1 120mW per element must not be exceeded.  
PNP type negative symbols have been omitted

### ●External dimensions (Units : mm)

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage	V <sub>I (off)</sub>	-	-	0.5	V	V <sub>CC</sub> =5/-5V, I <sub>O</sub> =100/-100μA
	V <sub>I (on)</sub>	3	-	-	V	V <sub>O</sub> =0.3/-0.3V, I <sub>O</sub> =2/-2mA
Output voltage	V <sub>O (on)</sub>	-	0.1	0.3	V	I <sub>O</sub> =10/-10mA, I <sub>I</sub> =0.5/-0.5mA
Input current	I <sub>I</sub>	-	-	0.18	mA	V <sub>I</sub> =5/-5V
Output current	I <sub>O (off)</sub>	-	-	0.5	μA	V <sub>CC</sub> =50/-50V, V <sub>I</sub> =0V
DC current gain	G <sub>I</sub>	68	-	-	-	I <sub>O</sub> =5/-5mA, V <sub>O</sub> =5/-5V
Transition frequency	f <sub>T</sub>	-	250	-	MHz	V <sub>CE</sub> =10/-10V, I <sub>E</sub> =-5/5mA, f=100MHz *
Input resistance	R <sub>1</sub>	32.9	47	61.1	kΩ	-
Resistance ratio	R <sub>2</sub> / R <sub>1</sub>	0.8	1	1.2	-	-

\*Transition frequency of the device. PNP type negative symbols have been omitted



Transistors

●Electrical characteristics curves DTr1 (DTC144E)

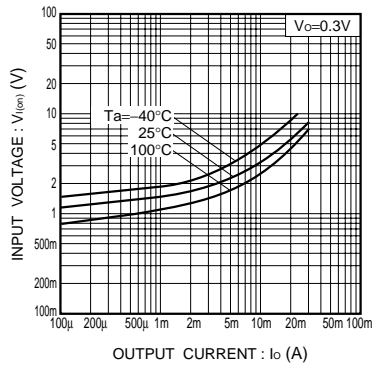


Fig.1 Input voltage vs. output current (ON characteristics)

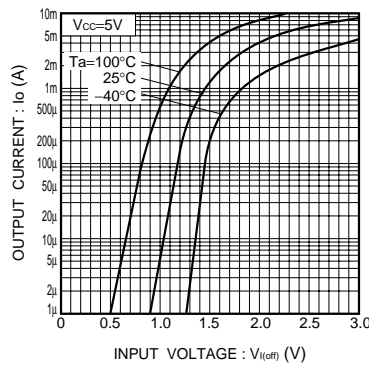


Fig.2 Output current vs. input voltage (OFF characteristics)

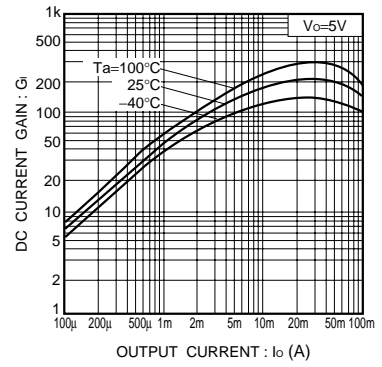


Fig.3 DC current gain vs. output current

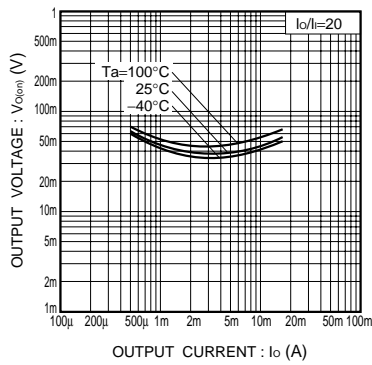


Fig.4 Output voltage vs. output current

Transistors

●Electrical characteristics curves DTr2 (DTA144E)

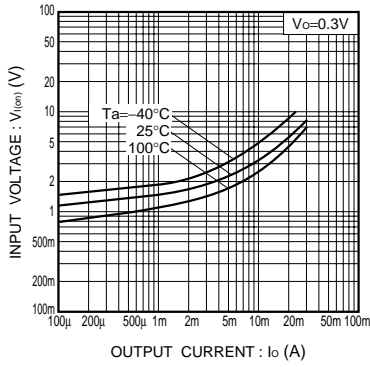


Fig.1 Input voltage vs. output current (ON characteristics)

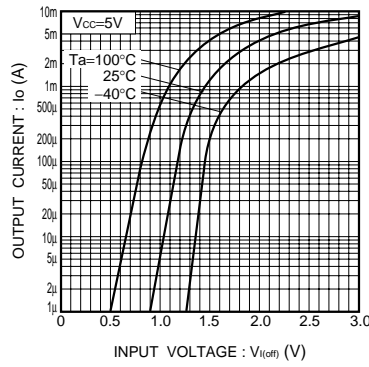


Fig.2 Output current vs. input voltage (OFF characteristics)

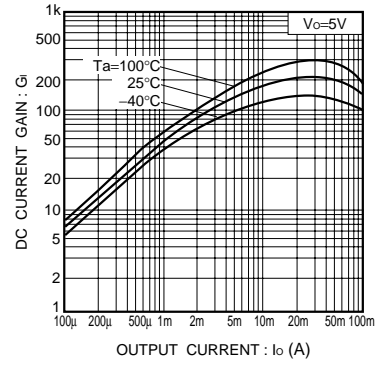


Fig.3 DC current gain vs. output current

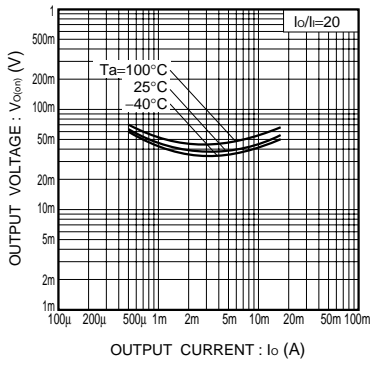


Fig.4 Output voltage vs. output current

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