

General purpose (dual digital transistors)

EMD22 / UMD22N

●Features

- 1) Both the DTA143Z chip and DTC143Z chip in an EMT or UMT package.
- 2) Mounting possible with EMT3 or UMT3 automatic mounting machines.
- 3) Transistor elements are independent, eliminating interference.
- 4) Mounting cost and area can be cut in half.

●Structure

A PNP and NPN digital transistor
(Each with a single built in resistor)

●Packaging specifications

Type	Package	Taping	
	Code	T2R	TR
	Basic ordering unit (pieces)	8000	3000
EMD22		○	—
UMD22N		—	○

●Absolute maximum ratings (Ta=25°C)

DTr 1

Parameter	Symbol	Limits	Unit
Supply voltage	V _{CC}	50	V
Input voltage	V _{IN}	-5 to +30	V
Output current	I _o	100	mA
	I _{C (MAX)}	100	
Power dissipation	P _d *	150	mW
Junction temperature	T _j	150	°C
Storage temperature	T _{stg}	-55 to +150	°C

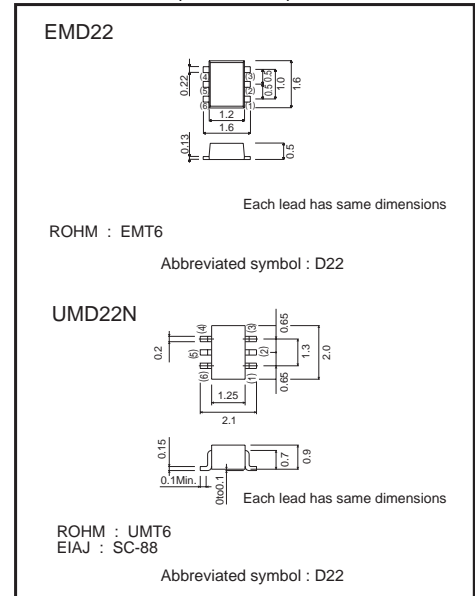
*120mW per element must not be exceeded

DTr 2

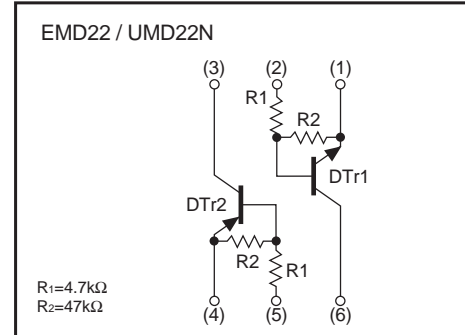
Parameter	Symbol	Limits	Unit
Supply voltage	V _{CC}	-50	V
Input voltage	V _{IN}	-30 to +5	V
Output current	I _o	-100	mA
	I _{C (MAX)}	-100	
Power dissipation *	P _d	150	mW
Junction temperature	T _j	150	°C
Storage temperature	T _{stg}	-55 to +150	°C

*120mW per element must not be exceeded

●Dimensions (Unit : mm)



●Inner circuit



●Electrical characteristics (Ta=25°C)

DTr 1

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage	$V_{I(off)}$	–	–	0.5	V	$V_{CC}=5V, I_o=100\mu A$
	$V_{I(on)}$	1.3	–	–		$V_o=0.3V, I_o=5mA$
Output voltage	$V_{O(on)}$	–	0.1	0.3	V	$I_o/I_i=5mA/0.25mA$
Input current	I_i	–	–	1.8	mA	$V_i=5V$
Output current	$I_{O(off)}$	–	–	0.5	μA	$V_{CC}=50V, V_i=0V$
DC current gain	G_i	80	–	–	–	$V_o=5V, I_o=10mA$
Input resistance	R_1	3.29	4.7	6.11	k Ω	–
Resistance ratio	R_2/R_1	8	10	12	–	–
Transition frequency	f_T *	–	250	–	MHz	$V_{CE}=10V, I_E=-5mA, f=100MHz$

*Transition frequency of the device

DTr 2

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage	$V_{I(off)}$	–	–	-0.5	V	$V_{CC}=-5V, I_o=-100\mu A$
	$V_{I(on)}$	-1.3	–	–		$V_o=-0.3V, I_o=-5mA$
Output voltage	$V_{O(on)}$	–	-0.1	-0.3	V	$I_o/I_i=-5mA/-0.25mA$
Input current	I_i	–	–	-1.8	mA	$V_i=-5V$
Output current	$I_{O(off)}$	–	–	-0.5	μA	$V_{CC}=-50V, V_i=0V$
DC current gain	G_i	80	–	–	–	$V_o=-5V, I_o=-10mA$
Input resistance	R_1	3.29	4.7	6.11	k Ω	–
Resistance ratio	R_2/R_1	8	10	12	–	–
Transition frequency	f_T *	–	250	–	MHz	$V_{CE}=-10V, I_E=5mA, f=100MHz$

*Transition frequency of the device

●Electrical characteristic curves

DTr 1

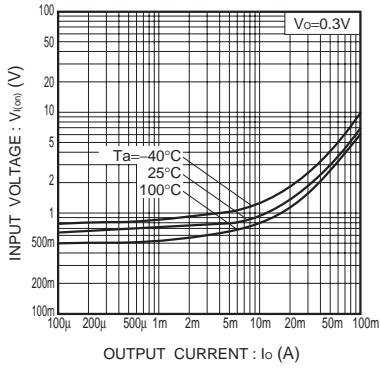


Fig.1 Input voltage vs. output current (ON characteristics)

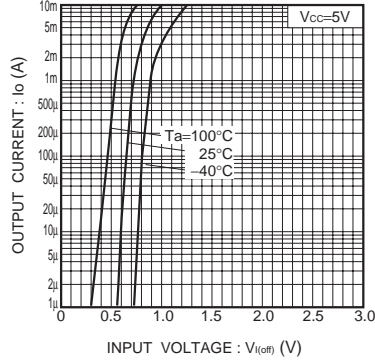


Fig.2 Output current vs. input voltage (OFF characteristics)

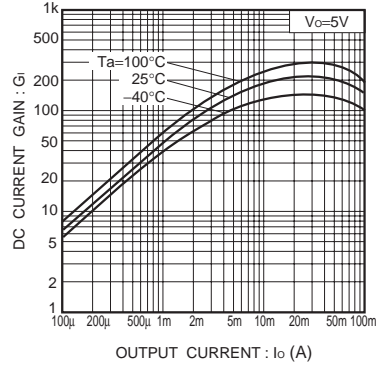


Fig.3 DC current gain vs. output current

DTr 2

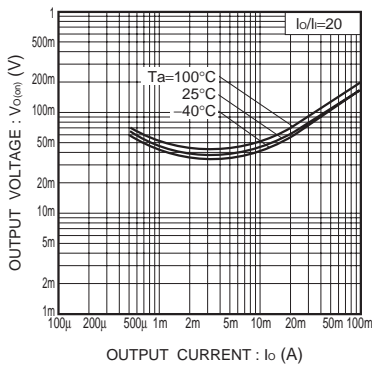


Fig.4 Output voltage vs. output current

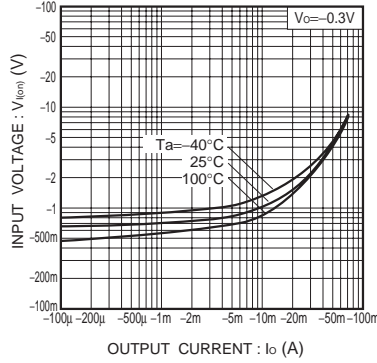


Fig.5 Input voltage vs. output current (ON characteristics)

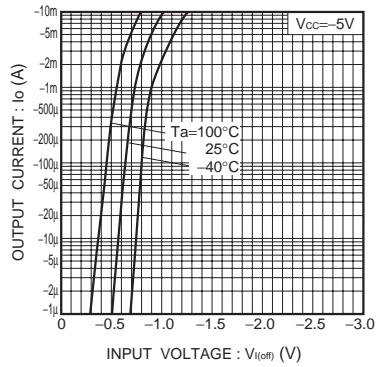


Fig.6 Output current vs. input voltage (OFF characteristics)

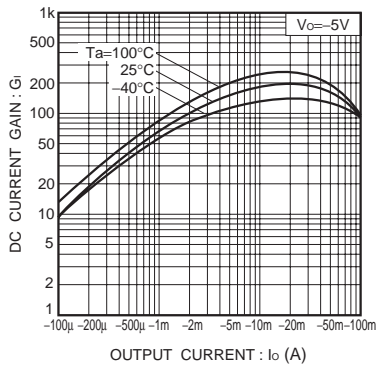


Fig.7 DC current gain vs. output current

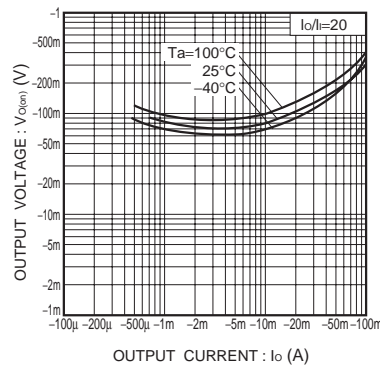


Fig.8 Output voltage vs. output current

Notes

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