General purpose (dual digital transistors)

EMD22 / UMD22N

●Features

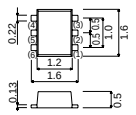
1) Both the DTA143Z chip and DTC143Z chip in an EMT or UMT package.
2) Mounting possible with EMT3 or UMT3 automatic mounting machines.
3) Transistor elements are independent, eliminating interference.
4) Mounting cost and area can be cut in half.

●Structure

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

●External dimensions (Unit : mm)

EMD22

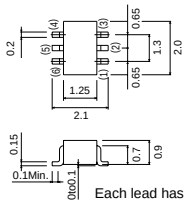


Each lead has same dimensions

ROHM : EMT6

Abbreviated symbol : D22

UMD22N



Each lead has same dimensions

ROHM : UMT6
EIAJ : SC-88

Abbreviated symbol : D22

●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	DTr 1	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	Pd	150	mW ✻
Junction temperature	Tj	150	°C
Storage temperature	Tstg	−55 to +150	°C

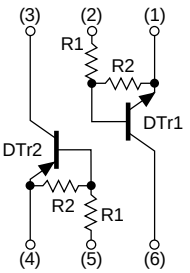
✻120mW per element must not be exceeded

Parameter	Symbol	DTr 2	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	Pd	150	mW ✻
Junction temperature	Tj	150	°C
Storage temperature	Tstg	−55 to +150	°C

✻120mW per element must not be exceeded

●Equivalent circuit

EMD22 / UMD22N



R_1=4.7kΩ
R_2=47kΩ

●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=100μA
	$V_{I(on)}$	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	kΩ	–
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=–100μA
	$V_{I(on)}$	–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	kΩ	–
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

●Packaging specifications

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

●Electrical characteristic curves

DTr 1

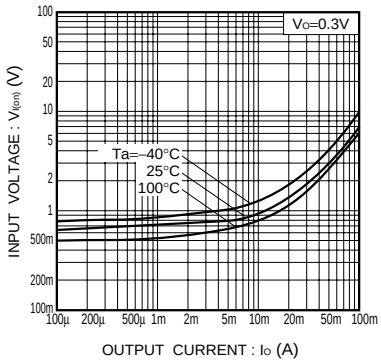


Fig.1 Input voltage vs. output current (ON characteristics)

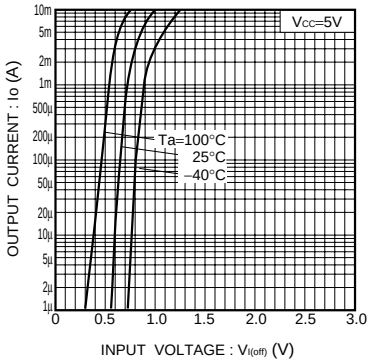


Fig.2 Output current vs. input voltage (OFF characteristics)

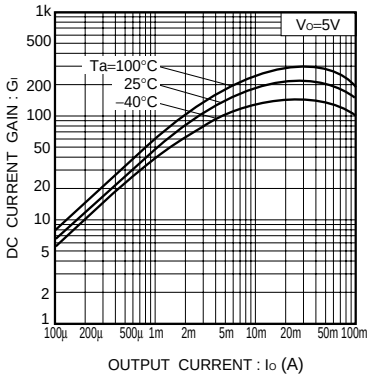


Fig.3 DC current gain vs. output current

DTr 2

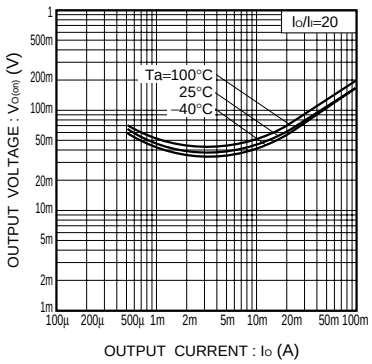


Fig.4 Output voltage vs. output current

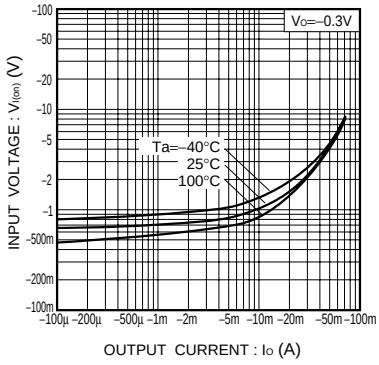


Fig.5 Input voltage vs. output current (ON characteristics)

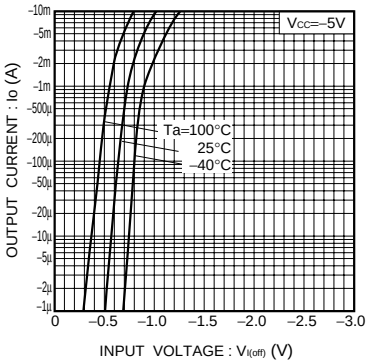


Fig.6 Output current vs. input voltage (OFF characteristics)

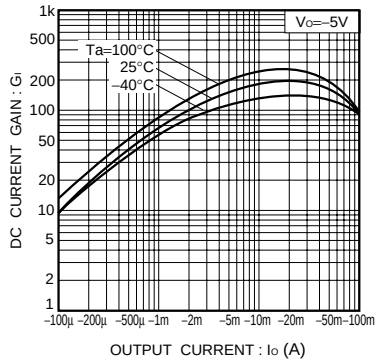


Fig.7 DC current gain vs. output current

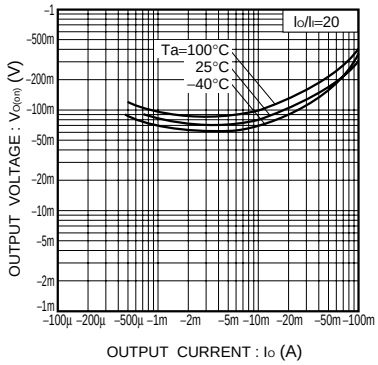


Fig.8 Output voltage vs. output current

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