General purpose (Dual digital transistors)

EMD3 / UMD3N / IMD3A

●Features

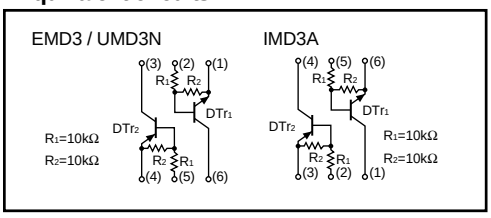
1) Both the DTA114E chip and DTC114E chip in a EMT or UMT or SMT package.
2) Mounting possible with EMT3 or UMT3 or SMT3 automatic mounting machines.
3) Transistor elements are independent, eliminating interference.
4) Mounting cost and area can be cut in half.

●Structure

Epitaxial planar type
NPN / PNP silicon transistor (Built-in resistor type)

The following characteristics apply to both the DTr_1 and DTr_2, however, the "–" sign on DTr_2 values for the PNP type have been omitted.

●Equivalent circuits



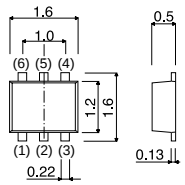
●Absolute maximum ratings (Ta=25°C)

Parameter		Symbol	Limits	Unit
Supply voltage		V_{CC}	50	V
Input voltage		V_{IN}	–10	V
			40	
Output current		I_O	50	mA
		$I_{C\ (Max.)}$	100	
Power dissipation	EMD3, UMD3N	Pd	150 (TOTAL)	mW ∗1
	IMD3A		300 (TOTAL)	mW ∗2
Junction temperature		Tj	150	˚C
Storage temperature		Tstg	–55 to +150	˚C

∗1 120mW per element must not be exceeded.
∗2 200mW per element must not be exceeded.

●Dimensions (Unit : mm)

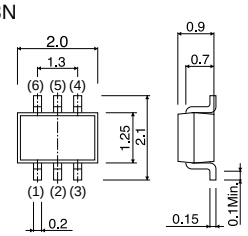
EMD3



ROHM : EMT6
Each lead has same dimensions

Abbreviated symbol : D3

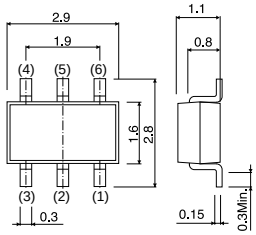
UMD3N



ROHM : UMT6
EIAJ : SC-88
Each lead has same dimensions

Abbreviated symbol : D3

IMD3A



ROHM : SMT6
EIAJ : SC-74
Each lead has same dimensions

Abbreviated symbol : D3

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage	$V_{I(off)}$	–	–	0.5	V	V_{CC}=5V, I_O=100μA
	$V_{I(on)}$	3	–	–		V_O=0.3V, I_O=10mA
Output voltage	$V_{O(on)}$	–	0.1	0.3	V	I_O=10mA, I_I=0.5mA
Input current	I_I	–	–	0.88	mA	V_I=5V
Output current	$I_{O(off)}$	–	–	0.5	μA	V_{CC}=50V, V_I=0V
DC current gain	G_I	30	–	–	–	V_O=5V, I_O=5mA
Transition frequency	f_T	–	250	–	MHz	V_{CE}=10V, I_E=–5mA, f=100MHz *
Input resistance	R_1	7	10	13	kΩ	–
Resistance ratio	R_2/R_1	0.8	1	1.2	–	–

* Transition frequency of the device

●**Packaging specifications**

Type	Package	Taping		
	Code	T2R	TR	T108
	Basic ordering unit (pieces)	8000	3000	3000
EMD3		○	—	—
UMD3N		—	○	—
IMD3A		—	—	○

●**Electrical characteristic curves**

DTr1 (NPN)

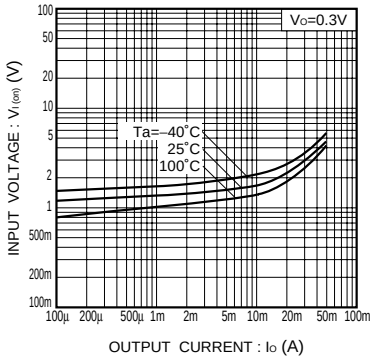


Fig.1 Input voltage vs. output current (ON characteristics)

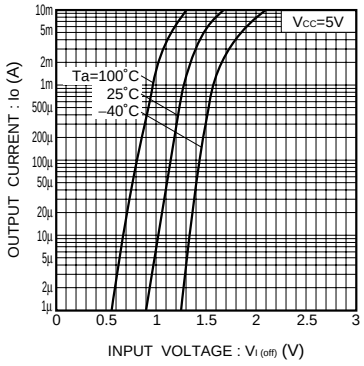


Fig.2 Output current vs. input voltage (OFF characteristics)

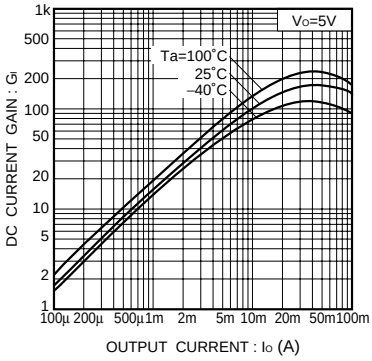


Fig.3 DC current gain vs. output current

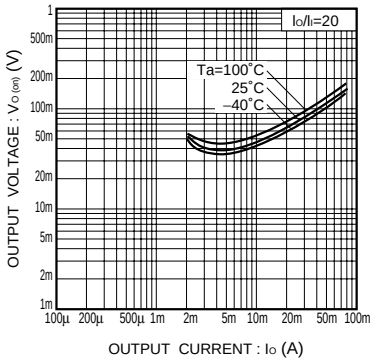


Fig.4 Output voltage vs. output current

DTr2 (PNP)

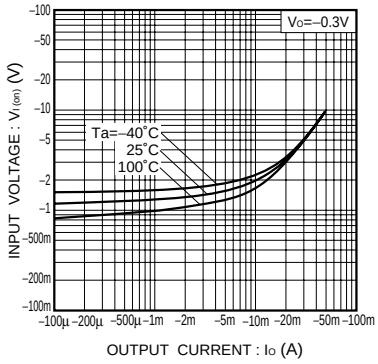


Fig.5 Input voltage vs. output current (ON characteristics)

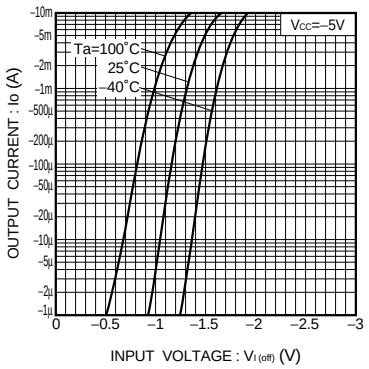


Fig.6 Output current vs. input voltage (OFF characteristics)

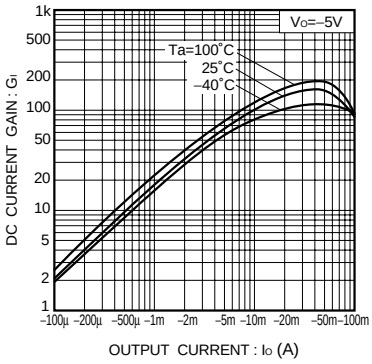


Fig.7 DC current gain vs. output current

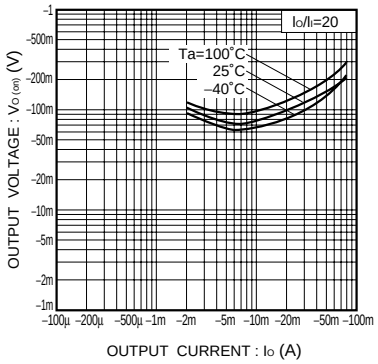


Fig.8 Output voltage vs. output current

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