Emitter common (dual digital transistors)

UMG8N / FMG8A

●Features

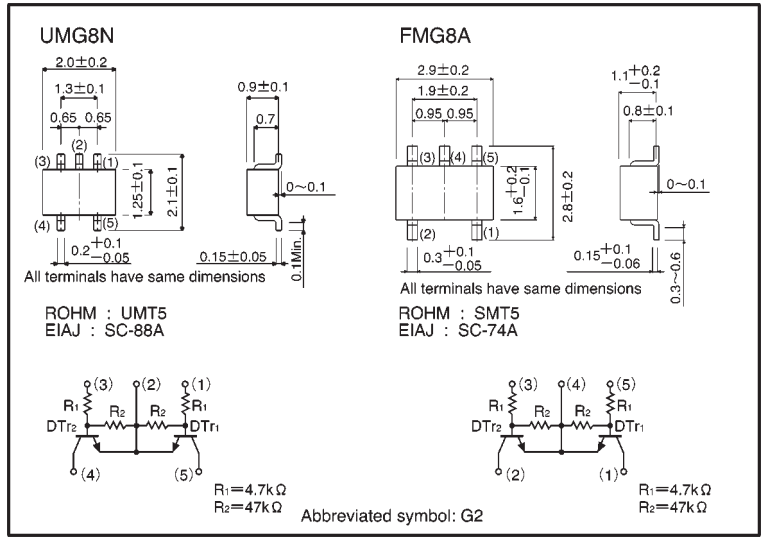
1) Two DTC143T chips in a UMT or SMT package.
2) Mounting cost and area can be cut in half.

●Structure

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

The following characteristics apply to both DTr_1 and DTr_2.

●External dimensions (Units: mm)



●Absolute maximum ratings (Ta = 25°C)

Parameter		Symbol	Limits	Unit	
Supply voltage		V_{CC}	50	V	
Input voltage		V_{IN}	30	V	
			−5		
Output current		I_O	100	mA	
		$I_{C(Max.)}$	100	mA	
Power dissipation	UMG8N	Pd	150 (TOTAL)	mW	∗1
	FMG8A		300 (TOTAL)		∗2
Junction temperature		Tj	150	℃	
Storage temperature		Tstg	−55~+150	℃	

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

●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=100 μA
	$V_{I(on)}$	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
Transition frequency	f_T	—	250	—	MHz	V_{CE}=10mA, I_E=−5mA, f=100MHz*
Input resistance	R_1	3.29	4.7	6.11	kΩ	—
Resistance ratio	R_2/R_1	8	10	12	—	—

* Transition frequency of the device

●Packaging specifications

Part No.	Packaging type	Taping	
	Code	TR	T148
	Basic ordering unit (pieces)	3000	3000
UMG8N		○	—
FMG8A		—	○

●Electrical characteristic curves

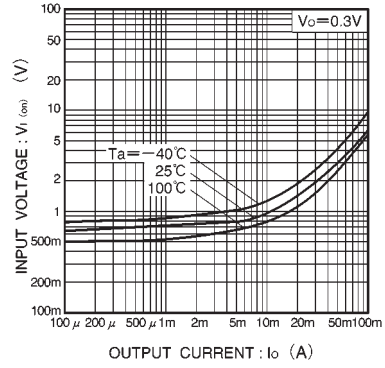


Fig.1 Input voltage vs. output current (ON characteristics)

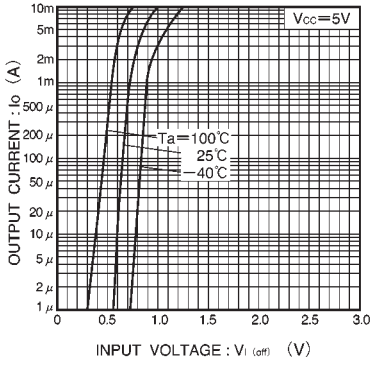


Fig.2 Output current vs. input voltage (OFF characteristics)

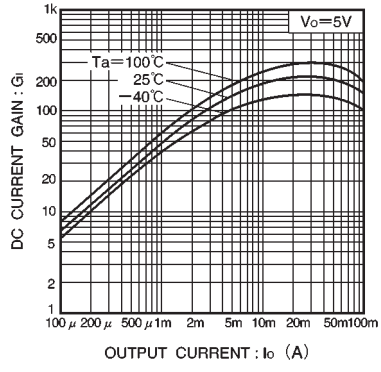


Fig.3 DC current gain vs. output current

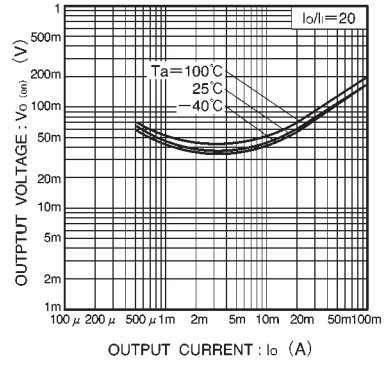


Fig.4 Output voltage vs. output current