Emitter common (dual digital transistors)

UMG3N / FMG3A

●Features

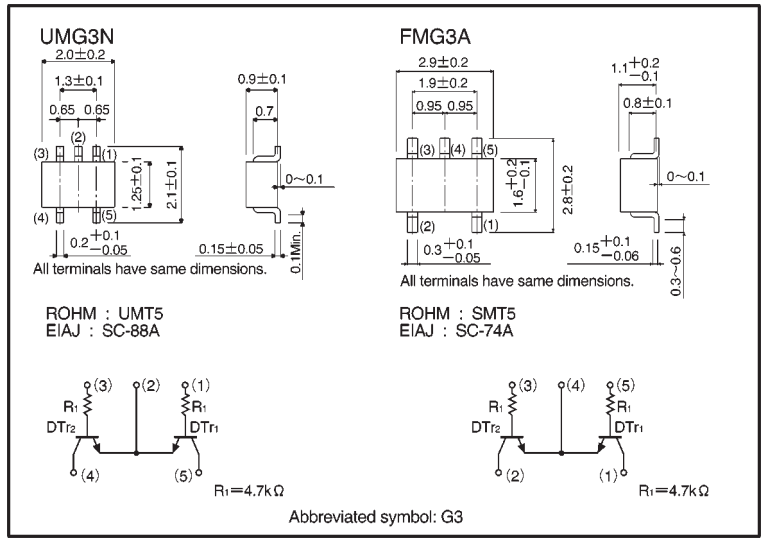
1) Two DTC143T chips in a UMT or SMT package.
2) Mounting cost and area can be cut in half.

●Structure

Dual NPN digital transistor
(each with single built in resistor)

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	
Collector-base voltage		V_{CBO}	50	V	
Collector-emitter voltage		V_{CEO}	50	V	
Emitter-base voltage		V_{EBO}	5	V	
Collector current		I_C	100	mA	
Collector power dissipation	UMG3N	P_C	150 (TOTAL)	mW	∗1
	FMG3A		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
Collector-base breakdown voltage	BV_{CBO}	50	—	—	V	I_C=50 μA
Collector-emitter breakdown voltage	BV_{CEO}	50	—	—	V	I_C=1mA
Emitter-base breakdown voltage	BV_{EBO}	5	—	—	V	I_E=50 μA
Collector cutoff current	I_{CBO}	—	—	0.5	μA	V_{CB}=50V
Emitter cutoff current	I_{EBO}	—	—	0.5	μA	V_{EB}=4V
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	—	0.3	V	I_C/I_B=10mA/1mA
DC current transfer ratio	h_{FE}	100	250	600	—	V_{CE}=5V, I_C=1mA
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	—

∗ Transition frequency of the device

●Packaging specifications

	Packaging type	Taping	
	Code	TR	T148
Part No.	Basic ordering unit (pieces)	3000	3000
UMG3N		○	—
FMG3A		—	○

●Electrical characteristic curves

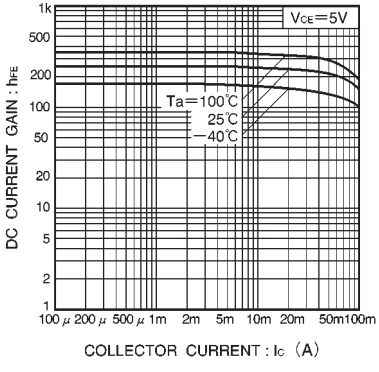


Fig.1 DC current gain vs. collector current

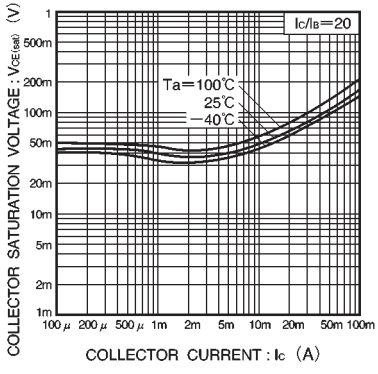


Fig.2 Collector-emitter saturation voltage vs. collector current