Emitter common (dual digital transistors)

EMG3 / UMG3N / FMG3A

●Features

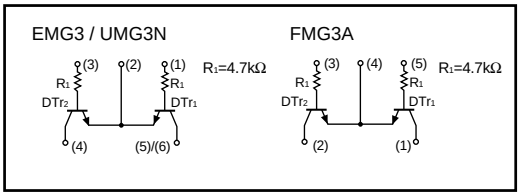
1) Two DTC143T chips in a EMT or UMT or SMT package.
2) Mounting cost and area can be cut in half.

●Structure

Dual NPN digital transistor
(each with a single built in resistors)

The following characteristics apply to both the DTr1 and DTr2.

●Equivalent circuit



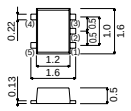
●Absolute maximum ratings (Ta = 25°C)

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	EMG3, UMG3N	P_C	150 (TOTAL)	mW ∗1
	FMG3A		300 (TOTAL)	∗2
Junction temperature		Tj	150	˚C
Storage temperature		Tstg	−55−+150	˚C

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

●External dimensions (Units : mm)

EMG3

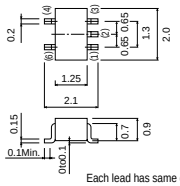


Each lead has same dimensions

ROHM : EMT5

Abbreviated symbol : G3

UMG3N

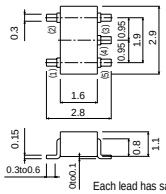


Each lead has same dimensions

ROHM : UMT5
EIAJ : SC-88A

Abbreviated symbol : G3

FMG3A



Each lead has same dimensions

ROHM : SMT5
EIAJ : SC-74A

Abbreviated symbol : G3

●Electrical characteristics (Ta = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	50	–	–	V	I_C=50μA
Collector-emitter breakdown voltage	BV_{CEO}	50	–	–	V	I_C=1mA
Emitter-base breakdown voltage	BV_{EBO}	5	–	–	V	I_E=50μA
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 transistor

●Packaging specifications

Type	Package	Taping		
	Code	T2R	TR	T148
	Basic ordering unit (pieces)	8000	3000	3000
EMG3		○	—	—
UMG3N		—	○	—
FMG3A		—	—	○

●Electrical characteristic curves

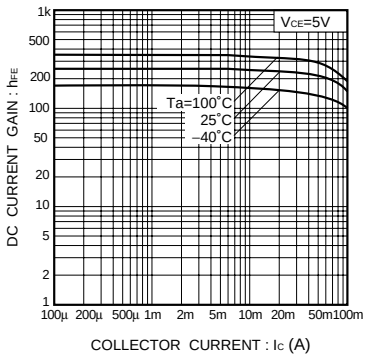


Fig.1 DC current gain vs. collector current

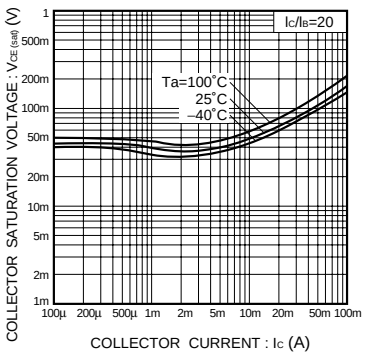


Fig.2 Collector-emitter saturation voltage vs. collector current