

# General Purpose Transistor (Isolated Dual Transistors)

## EMT1 / UMT1N / IMT1A

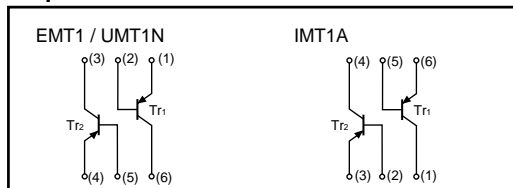
### ●Features

- 1) Two 2SA1037AK chips 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.

### ●Structure

Epitaxial planar type  
PNP silicon transistor

### ●Equivalent circuit



The following characteristics apply to both  
Tr1 and Tr2.

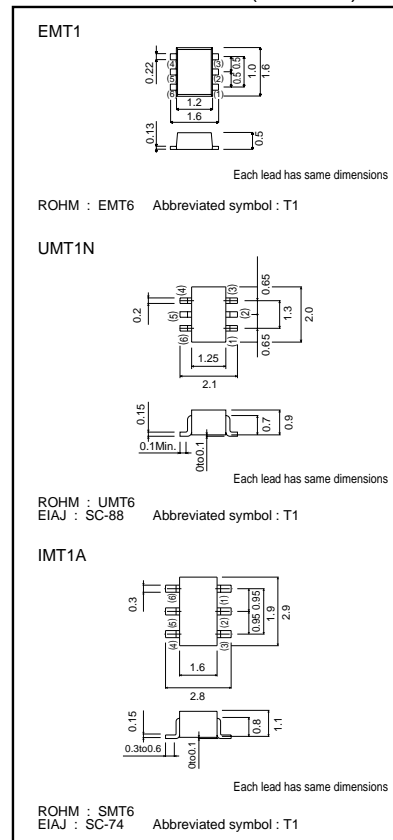
### ●Absolute maximum ratings (Ta = 25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	$V_{CBO}$	-60	V
Collector-emitter voltage	$V_{CEO}$	-50	V
Emitter-base voltage	$V_{EBO}$	-6	V
Collector current	$I_C$	-150	mA
Collector power dissipation	EMT1, UMT1N	$P_C$	150 (TOTAL)
	IMT1A		300 (TOTAL)
Junction temperature	$T_j$	150	°C
Storage temperature	$T_{stg}$	-55 to +150	°C

\*1 120mW per element must not be exceeded.

\*2 200mW per element must not be exceeded.

### ●External dimensions (Unit : mm)



# Transistors

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	$BV_{CBO}$	-60	-	-	V	$I_C = -50\mu A$
Collector-emitter breakdown voltage	$BV_{CEO}$	-50	-	-	V	$I_C = -1mA$
Emitter-base breakdown voltage	$BV_{EBO}$	-6	-	-	V	$I_E = -50\mu A$
Collector cutoff current	$I_{CBO}$	-	-	-0.1	$\mu A$	$V_{CB} = -60V$
Emitter cutoff current	$I_{EBO}$	-	-	-0.1	$\mu A$	$V_{EB} = -6V$
Collector-emitter saturation voltage	$V_{CE(sat)}$	-	-	-0.5	V	$I_C/I_B = -50mA/-5mA$
DC current transfer ratio	$h_{FE}$	120	-	560	-	$V_{CE} = -6V, I_C = -1mA$
Transition frequency	$f_T$	-	140	-	MHz	$V_{CE} = -12V, I_E = 2mA, f = 100MHz$
Output capacitance	$C_{ob}$	-	4	5	pF	$V_{CB} = -12V, I_E = 0A, f = 1MHz$

## ●Packaging specifications

Type	Package	Taping		
	Code	T2R	TR	T108
	Basic ordering unit (pieces)	8000	3000	3000
EMT1		○	-	-
UMT1N		-	○	-
IMT1A		-	-	○

## ●Electrical characteristic curves

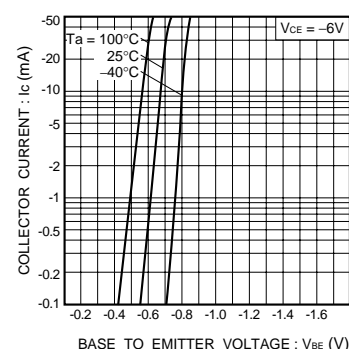


Fig.1 Grounded emitter propagation characteristics

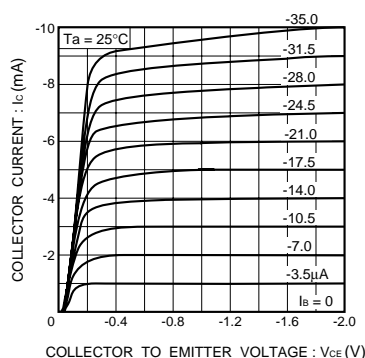


Fig.2 Grounded emitter output characteristics (I)

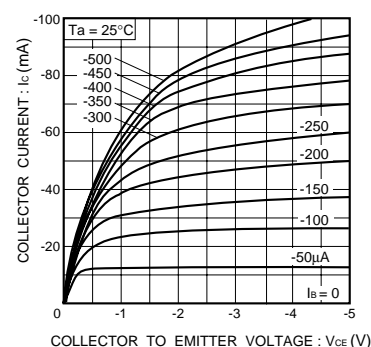


Fig.3 Grounded emitter output characteristics (II)

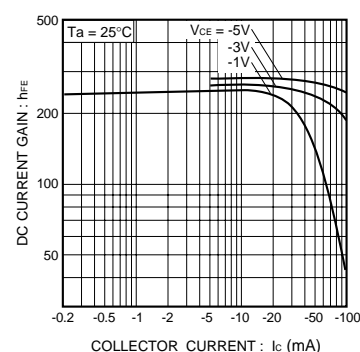


Fig.4 DC current gain vs. collector current (I)

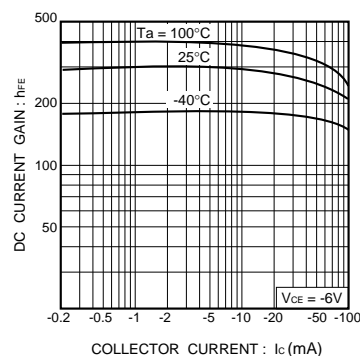


Fig.5 DC current gain vs. collector current (II)

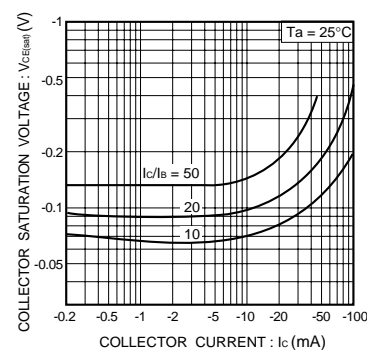


Fig.6 Collector-emitter saturation voltage vs. collector current (I)

Transistors

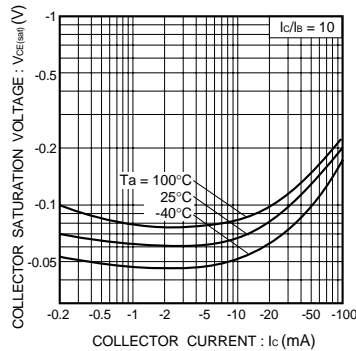


Fig.7 Collector-emitter saturation voltage vs. collector current ( II )

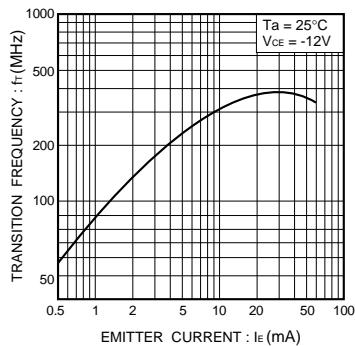


Fig.8 Gain bandwidth product vs. emitter current

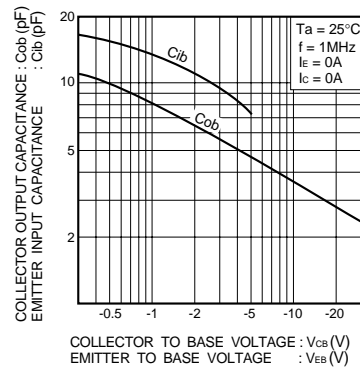


Fig.9 Collector output capacitance vs. collector-base voltage  
Emitter input capacitance vs. emitter-base voltage

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