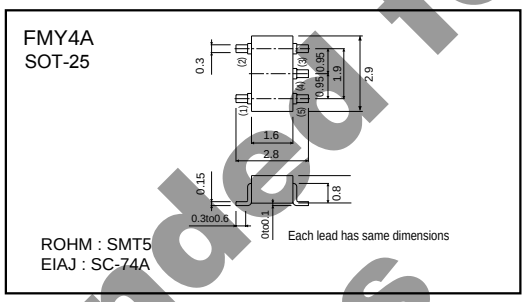
Power management (dual transistors)

FMY4A

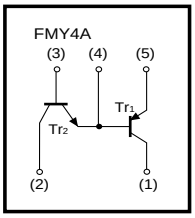
●Feature

1) Both a 2SA1037AK chip and 2SC2412K chip in a EMT or UMT or SMT package.

●External dimensions (Unit : mm)



●Equivalent circuits



●Absolute maximum ratings (Ta = 25°C)

Parameter	Symbol	Limits		Unit	
		Tr1	Tr2		
Collector-base voltage	V_{CBO}	−60	60	V	
Collector-emitter voltage	V_{CEO}	−50	50	V	
Emitter-base voltage	V_{EBO}	−6	7	V	
Collector current	I_C	−150	150	mA	
Collector power dissipation	P_C	300 (TOTAL)		mW	※1
Junction temperature	Tj	150		°C	
Storage temperature	Tstg	−55 to +150		°C	

※1 200mW per element must not be exceeded.

●Package, marking, and packaging specifications

Part No.	FMY4A
Package	SMT5
Marking	Y4
Code	T148
Basic ordering unit (pieces)	3000

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●Electrical characteristics (Ta=25°C)

Tr1 (PNP)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	–60	–	–	V	I_C = –50µA
Collector-emitter breakdown voltage	BV_{CEO}	–50	–	–	V	I_C = –1mA
Emitter-base breakdown voltage	BV_{EBO}	–6	–	–	V	I_E = –50µA
Collector cutoff current	I_{CBO}	–	–	–0.1	µA	V_{CB} = –60V
Emitter cutoff current	I_{EBO}	–	–	–0.1	µA	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	Cob	–	4	5	pF	V_{CB} = –12V , I_E = 0A , f = 1MHz

* Transition frequency of the device.

Tr2 (NPN)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	60	–	–	V	I_C = 50µA
Collector-emitter breakdown voltage	BV_{CEO}	50	–	–	V	I_C = 1mA
Emitter-base breakdown voltage	BV_{EBO}	7	–	–	V	I_E = 50µA
Collector cutoff current	I_{CBO}	–	–	0.1	µA	V_{CB} = 60V
Emitter cutoff current	I_{EBO}	–	–	0.1	µA	V_{EB} = 7V
Collector-emitter saturation voltage	$V_{CE(sat)}$	–	–	0.4	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	–	180	–	MHz	V_{CE} = 12V , I_E = –2mA , f = 100MHz *
Output capacitance	Cob	–	2	3.5	pF	V_{CB} = 12V , I_E = 0A , f = 1MHz

* Transition frequency of the device.

●Electrical characteristics curves

PNP Tr

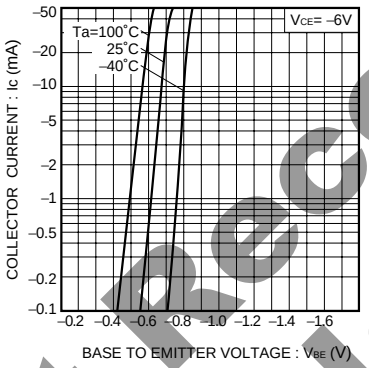


Fig.1 Grounded emitter propagation characteristics

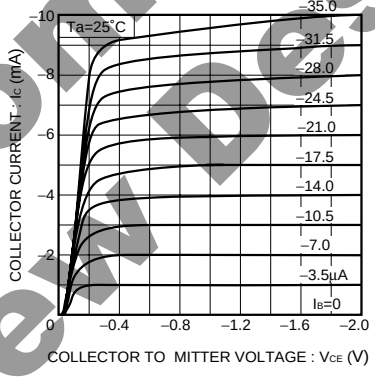


Fig.2 Grounded emitter output characteristics (I)

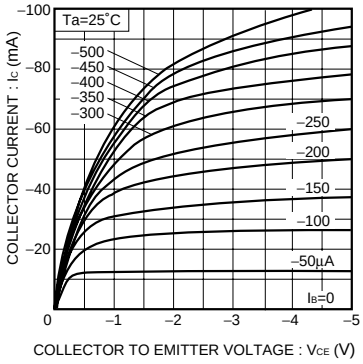


Fig.3 Grounded emitter output characteristics (II)

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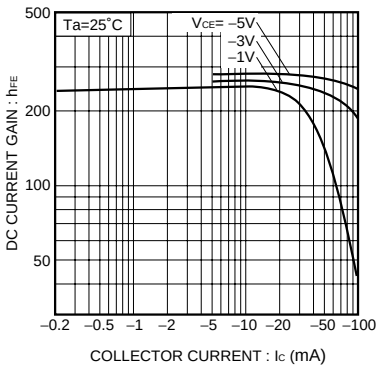


Fig.4 DC current gain vs. collector current (I)

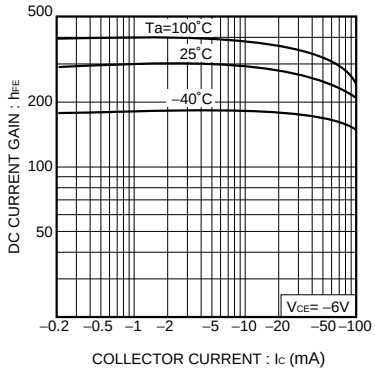


Fig.5 DC current gain vs. collector current (II)

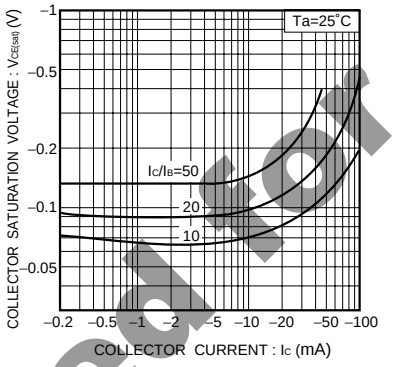


Fig.6 Collector-emitter saturation voltage vs. collector current (I)

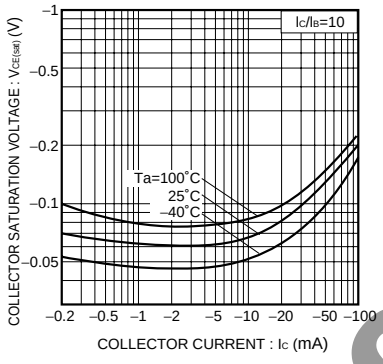


Fig.7 Collector-emitter saturation voltage vs. collector current (II)

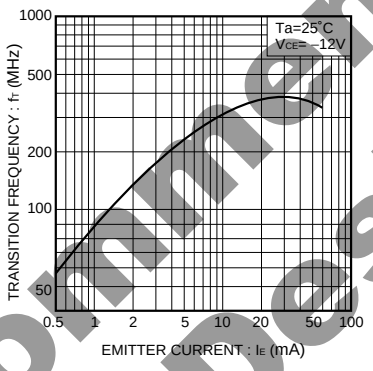


Fig.8 Gain bandwidth product vs. emitter current

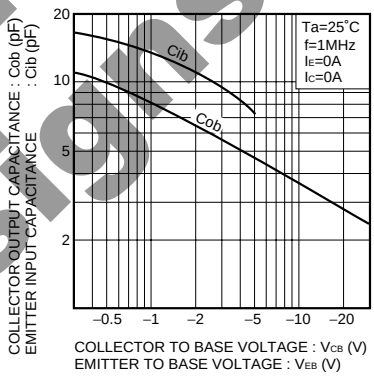


Fig.9 Collector output capacitance vs. collector-base voltage
Emitter inputcapacitance vs. emitter-base voltage

NPN Tr

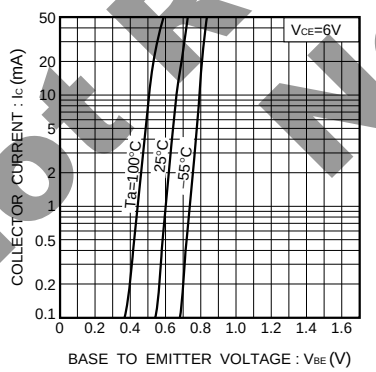


Fig.10 Grounded emitter propagation characteristics

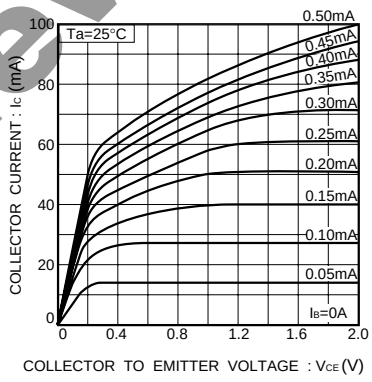


Fig.11 Grounded emitter output characteristics (I)

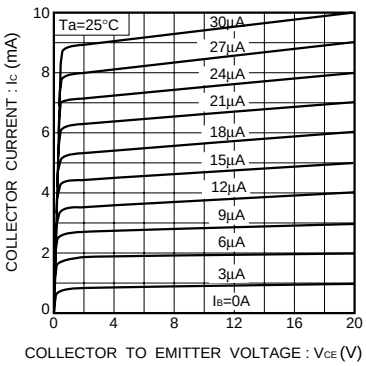


Fig.12 Grounded emitter output characteristics (II)

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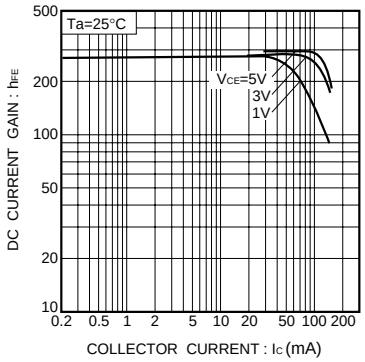


Fig.13 DC current gain vs. collector current (I)

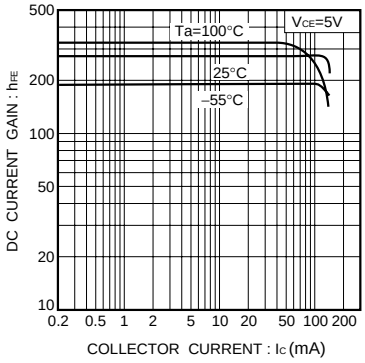


Fig.14 DC current gain vs. collector current (II)

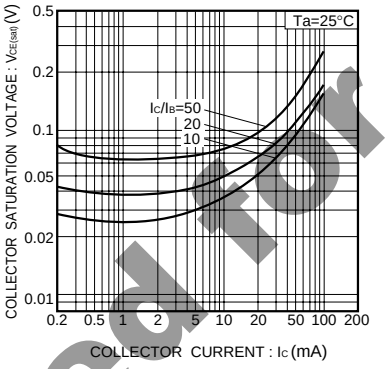


Fig.15 Collector-emitter saturation voltage vs. collector current

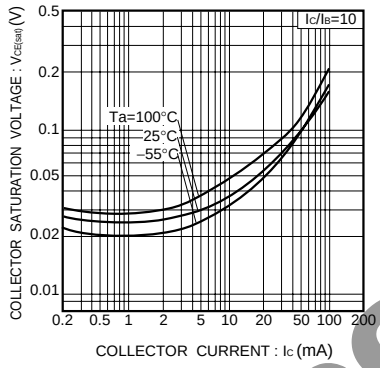


Fig.16 Collector-emitter saturation voltage vs. collector current (I)

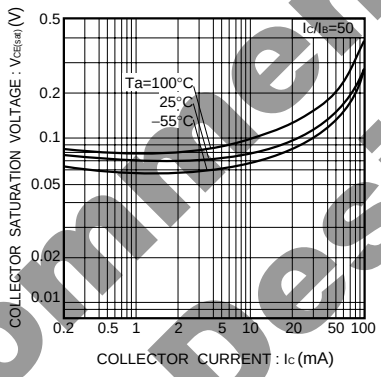


Fig.17 Collector-emitter saturation voltage vs. collector current (II)

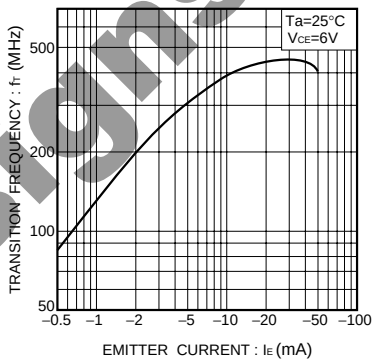


Fig.18 Gain bandwidth product vs. emitter current

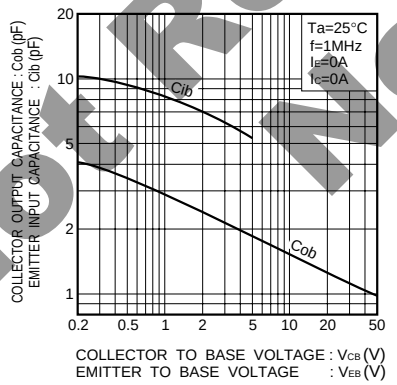


Fig.19 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

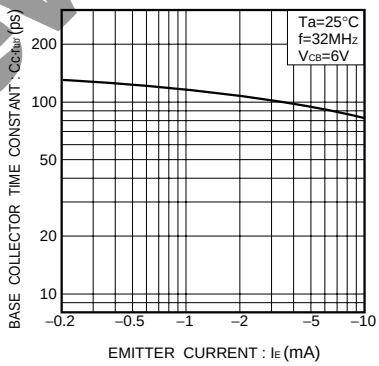


Fig.20 Base-collector time constant vs. emitter current

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