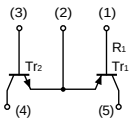
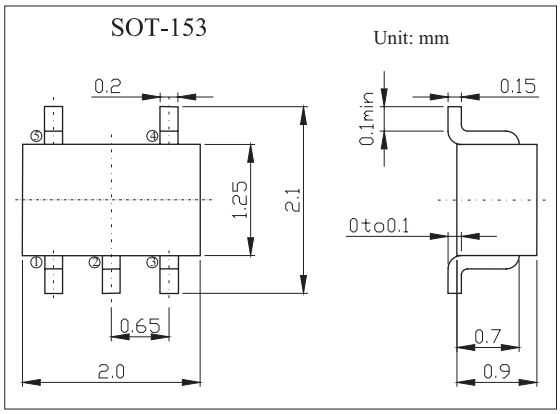
Emitter Common (Dual Transistors)
FMY1A

■ Features

- PNP and NPN transistors have common emitters.
- Mounting cost and area can be cut in half.





■ Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	Rating		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
Power dissipation(Total)	P_D	300		mW
Operating and Storage and Temperature Range	T_j, T_{STG}	-55 to +150		℃

FMY1A

■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Transistor Tr1(PNP)						
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C = -50 μA, I_E = 0	-60			V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C = -1 mA, I_B = 0	-50			V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	I_C = -50 μA, I_C = 0	-6			V
Collector cutoff current	I_{CBO}	V_{CB}=-60V, I_E=0			-100	nA
Emitter cutoff current	I_{EBO}	V_{EB}=-6V, I_C=0			-100	nA
DC current gain	h_{FE}	V_{CE}=-6V, I_C= -1mA	120		560	
collector-emitter saturation voltage *	$V_{CE(sat)}$	I_C = -50 mA; I_B = -5 mA			-0.5	V
Transition frequency	f_T	I_C = -2 mA; V_{CE} = -12 V; f = 100 MHz		140		MHz
Collector output capacitance	C_{ob}	V_{CB}=-12V, I_E=0A, f=1MHz			5	pF
Transistor Tr2(NPN)						
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C = 50 μA, I_E = 0	60			V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C = 1 mA, I_B = 0	50			V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	I_C = 50 μA, I_C = 0	7			V
Collector cutoff current	I_{CBO}	V_{CB}=60V, I_E=0			100	nA
Emitter cutoff current	I_{EBO}	V_{EB}=7V, I_C=0			100	nA
DC current gain	h_{FE}	V_{CE}=6V, I_C= 1mA	120		560	
collector-emitter saturation voltage *	$V_{CE(sat)}$	I_C = 50 mA; I_B = 5 mA			0.4	V
Transition frequency	f_T	I_C = 2 mA; V_{CE} = 12 V; f = 100 MHz		180		MHz
Collector output capacitance	C_{ob}	V_{CB}=12V, I_E=0A, f=1MHz			3.5	pF

* pulse test: Pulse Width ≤300μs, Duty Cycle≤ 2.0%.

■ Marking

Marking	Y1

FMY1A

■ Typical Characteristics

Tr1 (PNP)

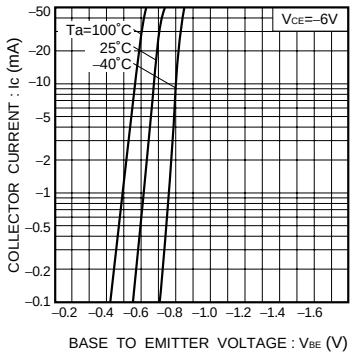


Fig.1 Grounded emitter propagation characteristics

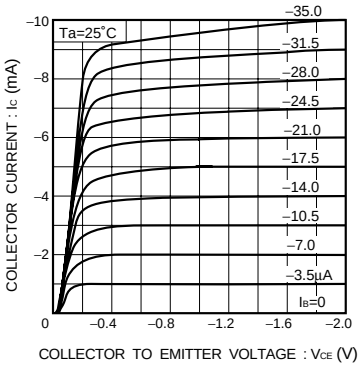


Fig.2 Grounded emitter output characteristics (1)

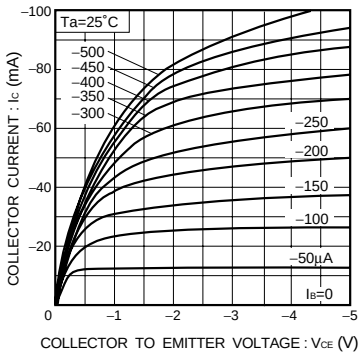


Fig.3 Grounded emitter output characteristics (2)

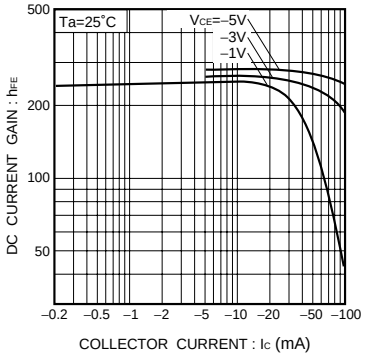


Fig.4 DC current gain vs. collector current (1)

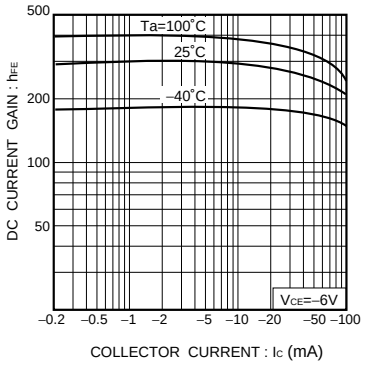


Fig.5 DC current gain vs. collector current (2)

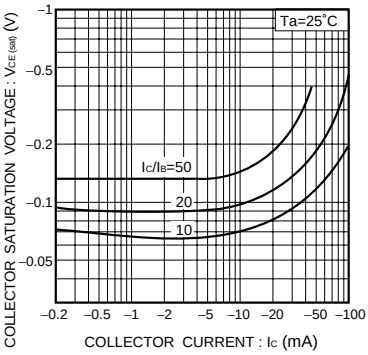


Fig.6 Collector-emitter saturation voltage vs. collector current (1)

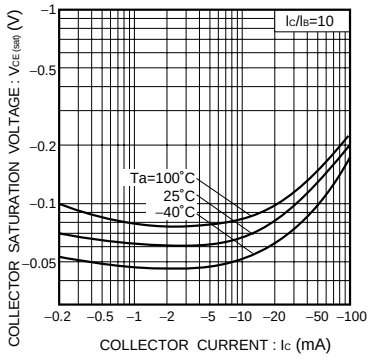


Fig.7 Collector-emitter saturation voltage vs. collector current (2)

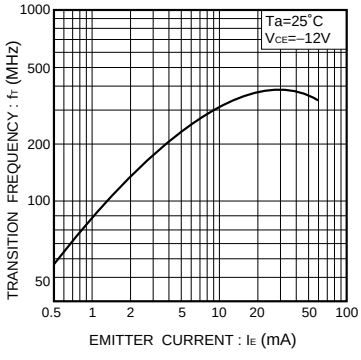


Fig.8 Gain bandwidth product vs. emitter current

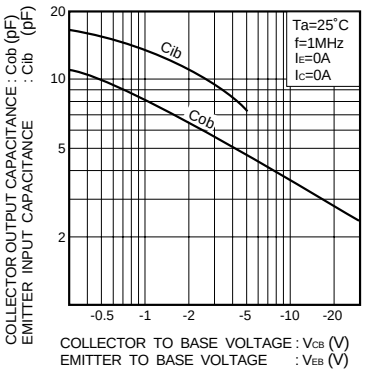


Fig.9 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

FMY1A

■ Typical Characteristics

Tr2 (NPN)

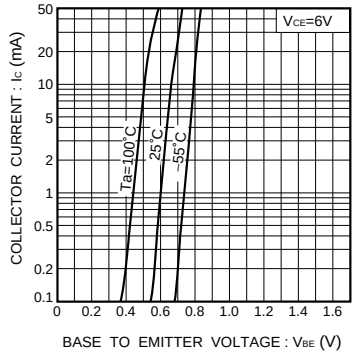


Fig.10 Grounded emitter propagation characteristics

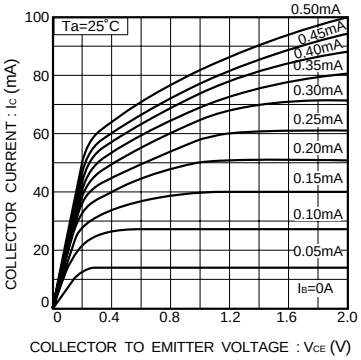


Fig.11 Grounded emitter output characteristics (1)

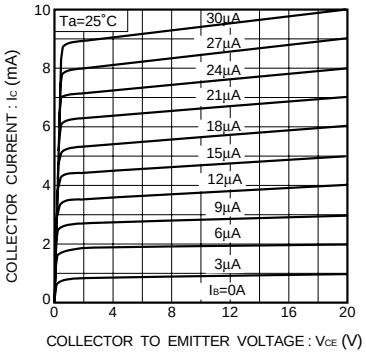


Fig.12 Grounded emitter output characteristics (2)

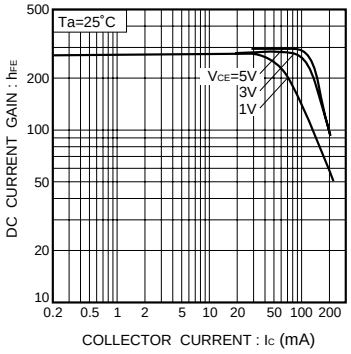


Fig.13 DC current gain vs. collector current (1)

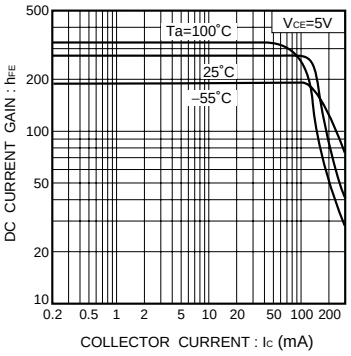


Fig.14 DC current gain vs. collector current (2)

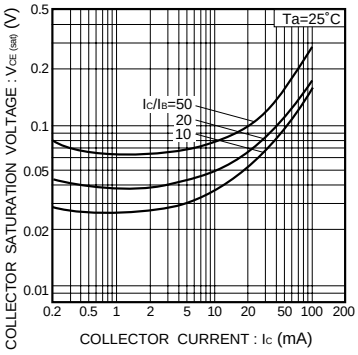


Fig.15 Collector-emitter saturation voltage vs. collector current (1)

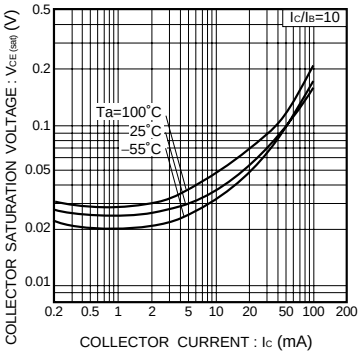


Fig.16 Collector-emitter saturation voltage vs. collector current (2)

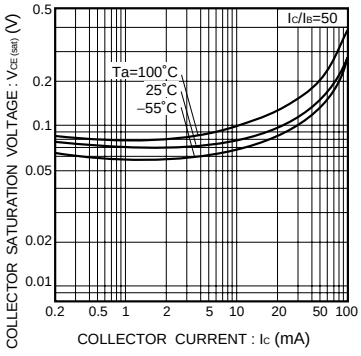


Fig.17 Collector-emitter saturation voltage vs. collector current (3)

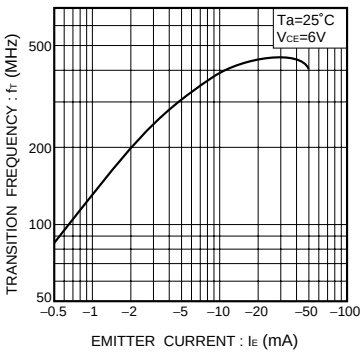


Fig.18 Gain bandwidth product vs. emitter current

FMY1A

■ Typical Characteristics

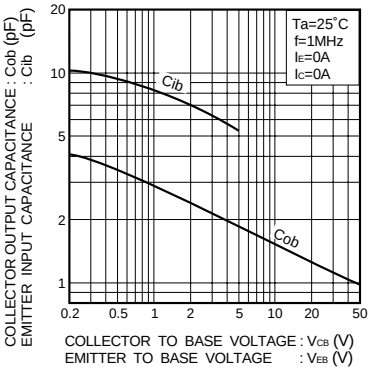


Fig.19 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

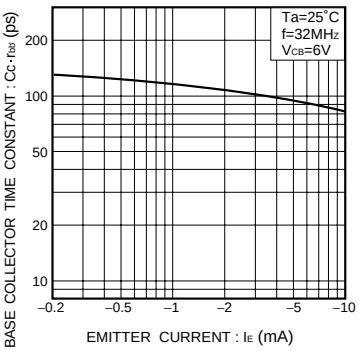


Fig.20 Base-collector time constant vs. emitter current