

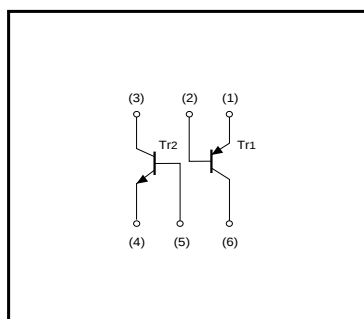
Power management (dual transistors)

EMZ8 / UMZ8N

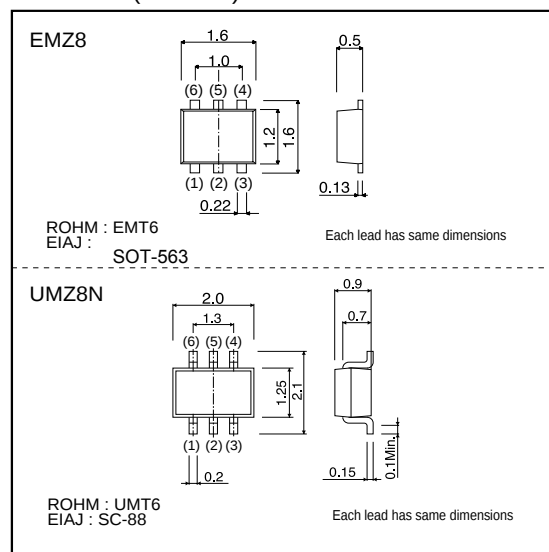
●Feature

- 1) Both a 2SA2018 chip and 2SC2412K chip in a EMT or UMT package.

●Equivalent circuits



●Dimensions(Unit : mm)



●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits		Unit
		Tr1	Tr2	
Collector-base voltage	V _{CBO}	-15	60	V
Collector-emitter voltage	V _{CEO}	-12	50	V
Emitter-base voltage	V _{EBO}	-6	7	V
Collector current	I _C	-500	150	mA
	I _{CP}	-1	-	A
Collector power dissipation	P _C	150 (TOTAL)		mW *
Junction temperature	T _J	150		°C
Storage temperature	T _{stg}	-55 to +150		°C

* 120mW per element must not be exceeded.

●Package, marking, and packaging specifications

Part No.	EMZ8	UMZ8N
Package	EMT6	UMT6
Marking	Z8	Z8
Code	T2R	TR
Basic ordering unit (pieces)	8000	3000

Transistors

●Electrical characteristics (Ta=25°C)

Tr1

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	-15	-	-	V	$I_C = -10\mu A$
Collector-emitter breakdown voltage	BV_{CEO}	-12	-	-	V	$I_C = -1mA$
Emitter-base breakdown voltage	BV_{EBO}	-6	-	-	V	$I_E = -10\mu A$
Collector cutoff current	I_{CBO}	-	-	-0.1	μA	$V_{CB} = -15V$
Emitter cutoff current	I_{EBO}	-	-	-0.1	μA	$V_{EB} = -6V$
Collector-emitter saturation voltage	$V_{CE(sat)}$	-	-0.1	-0.25	V	$I_C/I_B = -200mA/-10mA$
DC current transfer ratio	h_{FE}	270	-	680	-	$V_{CE} = -2V, I_C = -10mA$
Transition frequency	f_T	-	260	-	MHz	$V_{CE} = -2V, I_E = 10mA, f = 100MHz$
Output capacitance	C_{ob}	-	6.5	-	pF	$V_{CB} = -10V, I_E = 0A, f = 1MHz$

Tr2

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}	7	-	-	V	$I_E = 50\mu A$
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	C_{ob}	-	2	3.5	pF	$V_{CB} = 12V, I_E = 0A, f = 1MHz$

●Electrical characteristic curves

<Tr1>

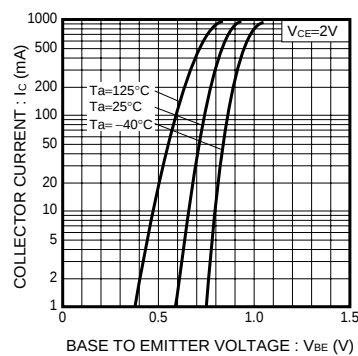


Fig.1 Grounded Emitter Propagation Characteristics

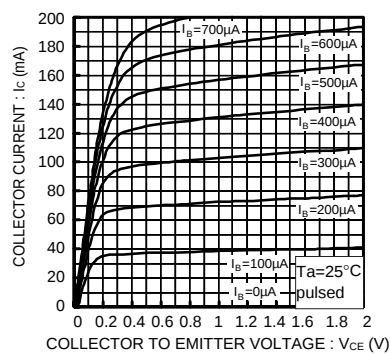


Fig.2 Typical Output Characteristics

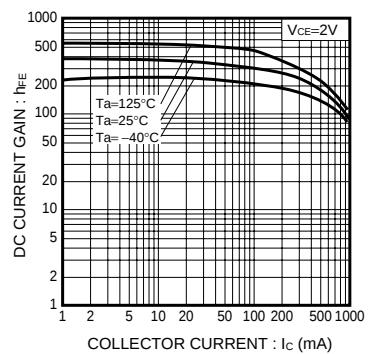


Fig.3 DC Current Gain vs. Collector Current

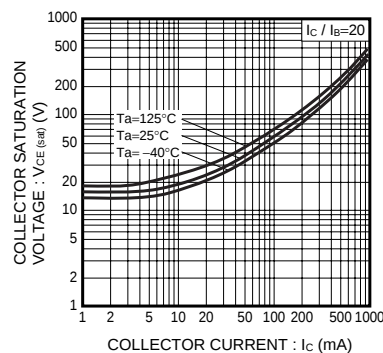


Fig.4 Collector-Emitter Saturation Voltage vs. Collector Current (I)

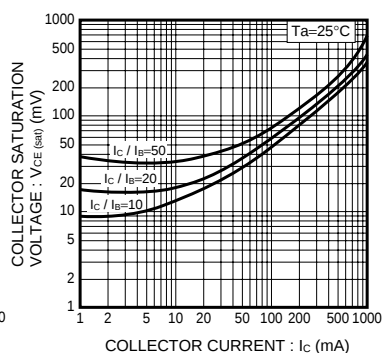


Fig.5 Collector-Emitter Saturation Voltage vs. Collector Current (II)

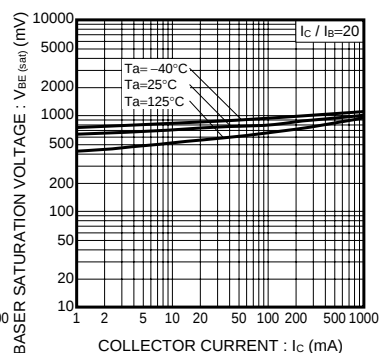


Fig.6 Base-Emitter Saturation Voltage vs. Collector Current

Transistors

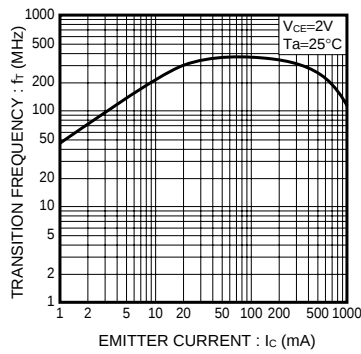
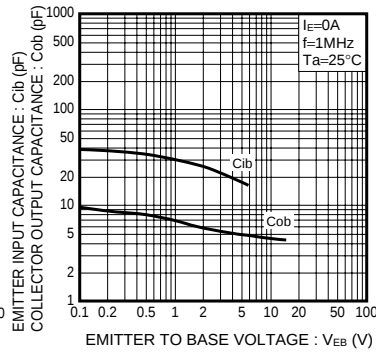


Fig.7 Gain Bandwidth Product vs. Emitter Current

Fig.8 Collector Output Capacitance vs. Collector-Base Voltage
Emitter Input Capacitance vs. Emitter-Base Voltage

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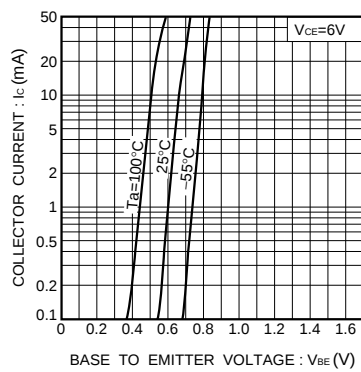


Fig.1 Grounded emitter propagation characteristics

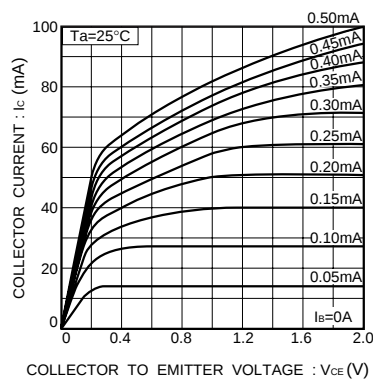


Fig.2 Grounded emitter output characteristics (I)

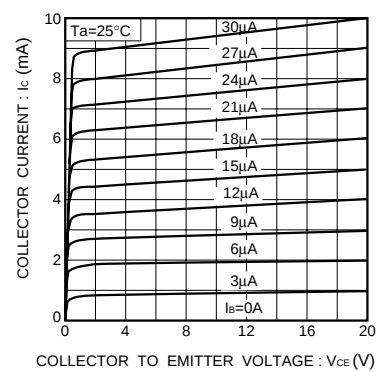


Fig.3 Grounded emitter output characteristics (II)

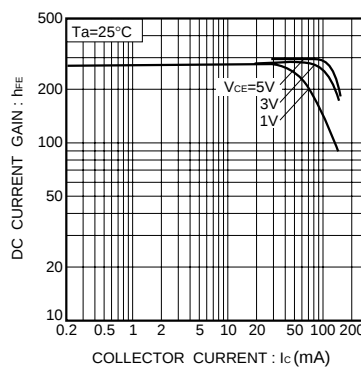


Fig.4 DC current gain vs. collector current (I)

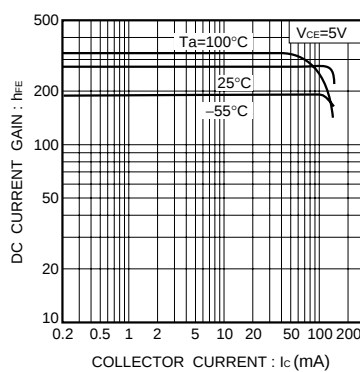


Fig.5 DC current gain vs. collector current (II)

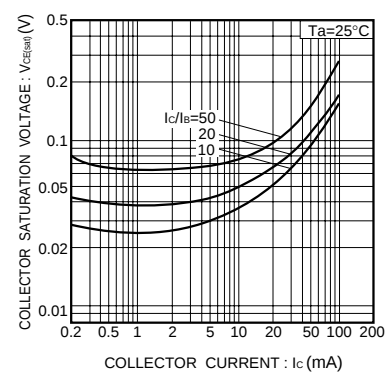


Fig.6 Collector-emitter saturation voltage vs. collector current

Transistors

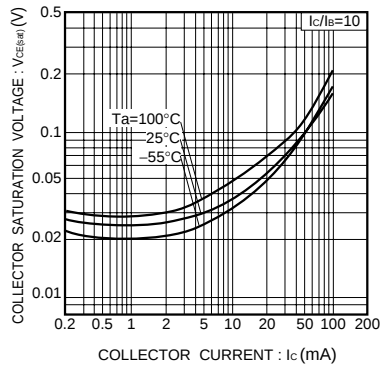


Fig. 7 Collector-emitter saturation voltage vs. collector current (I)

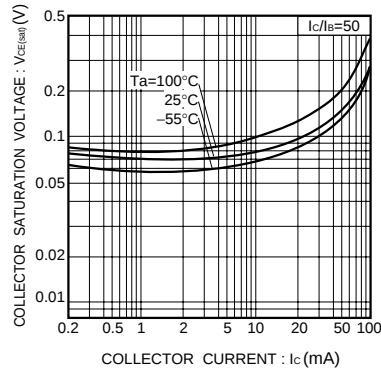


Fig. 8 Collector-emitter saturation voltage vs. collector current (II)

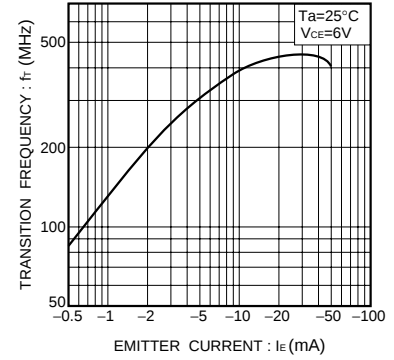


Fig. 9 Gain bandwidth product vs. emitter current

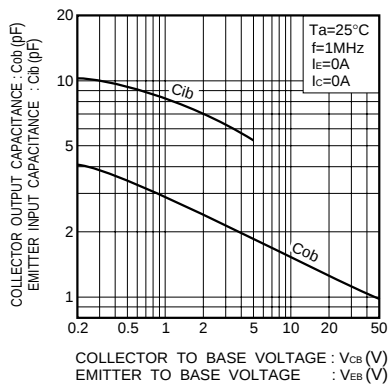


Fig. 10 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

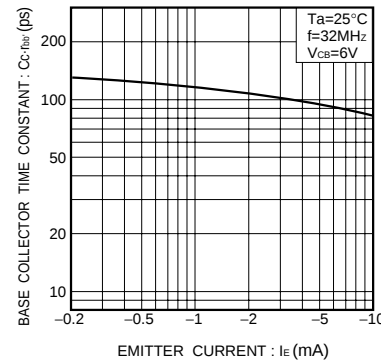


Fig. 11 Base-collector time constant vs. emitter current

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