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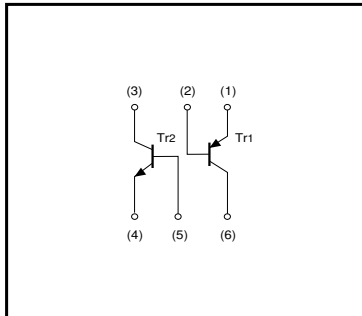
Transistors

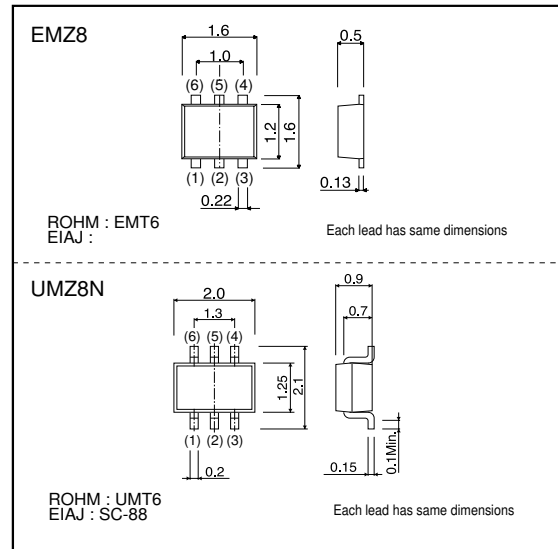# Power management (dual transistors)

EMZ8 / UMZ8N

●**Feature**

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

●**Equivalent circuits**

●**Dimensions**(Unit : mm)

EMZ8

ROHM : EMT6
EIAJ :

Each lead has same dimensions

UMZ8N

ROHM : UMT6
EIAJ : SC-88

Each lead has same dimensions

●**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	Tj	150		°C
Storage temperature	Tstg	−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

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

Tr1

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV$_{CBO}$	−15	–	–	V	IC = −10μA
Collector-emitter breakdown voltage	BV$_{CEO}$	−12	–	–	V	IC = −1mA
Emitter-base breakdown voltage	BV$_{EBO}$	−6	–	–	V	IE = −10μA
Collector cutoff current	I$_{CBO}$	–	–	−0.1	μA	VCB = −15V
Emitter cutoff current	I$_{EBO}$	–	–	−0.1	μA	VEB = −6V
Collector-emitter saturation voltage	V$_{CE(sat)}$	–	−0.1	−0.25	V	IC/IB = −200mA/−10mA
DC current transfer ratio	h$_{FE}$	270	–	680	–	VCE = −2V , IC = −10mA
Transition frequency	f$_T$	–	260	–	MHz	VCE = −2V , IE = 10mA , f = 100MHz
Output capacitance	Cob	–	6.5	–	pF	VCB = −10V , IE = 0A , f = 1MHz

Tr2

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

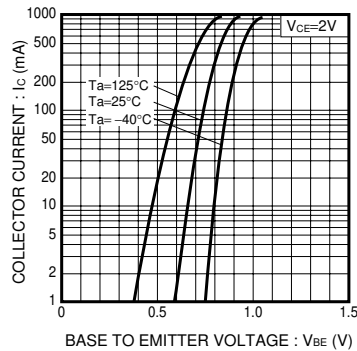●**Electrical characteristic curves**

<Tr1>

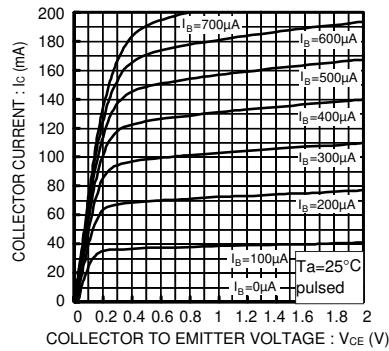Fig.1 Grounded Emitter Propagation Characteristics
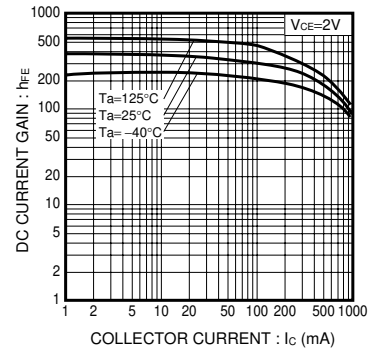

Fig.2 Typical Output Characteristics

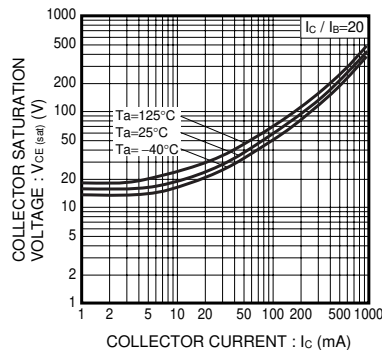Fig.3 DC Current Gain vs. Collector Current

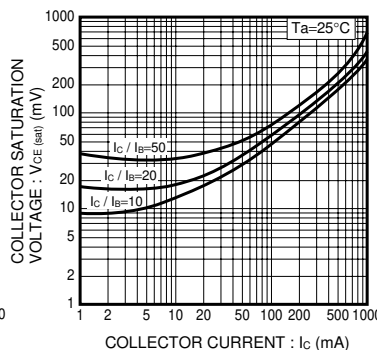Fig.4 Collector-Emitter Saturation Voltage vs. Collector Current (I)

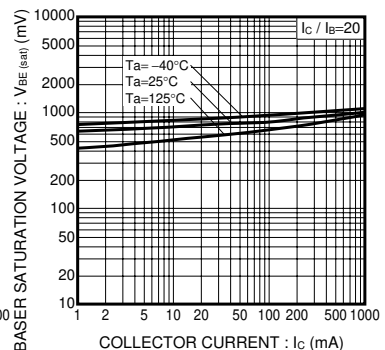Fig.5 Collector-Emitter Saturation Voltage vs. Collector Current (II)

Fig.6 Base-Emitter Saturation Voltage vs.Collecter Current
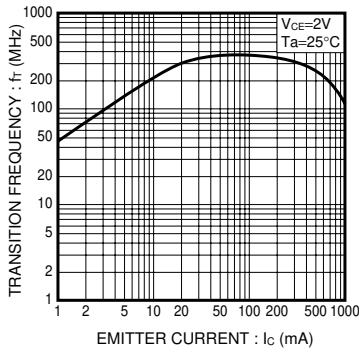
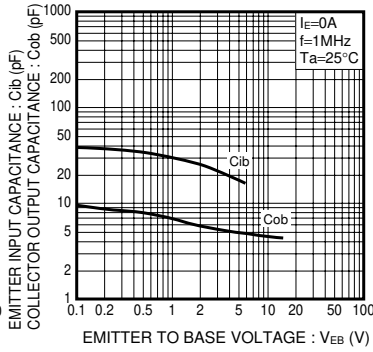Fig.7 Gain Bandwidth Product vs.
Emitter Current

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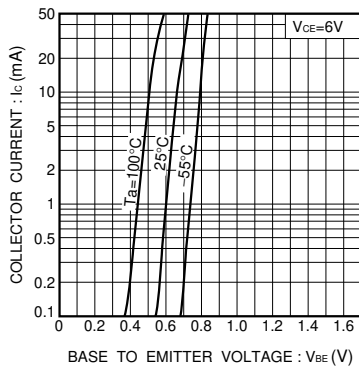Emitter Input Capacitance vs.
Emitter-Base Voltage

<Tr2>

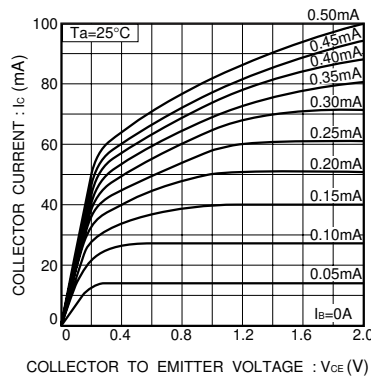Fig.1 Grounded emitter propagation
characteristics

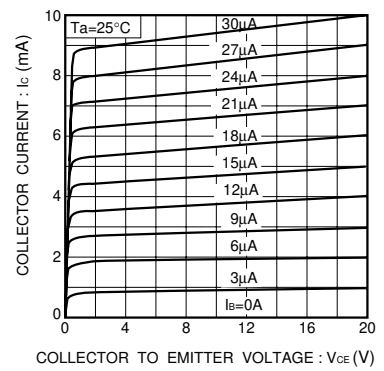Fig.2 Grounded emitter output
characteristics (I)
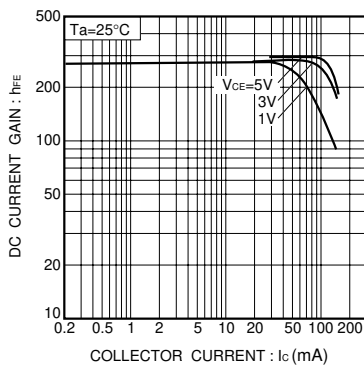

Fig.3 Grounded emitter output
characteristics (II)

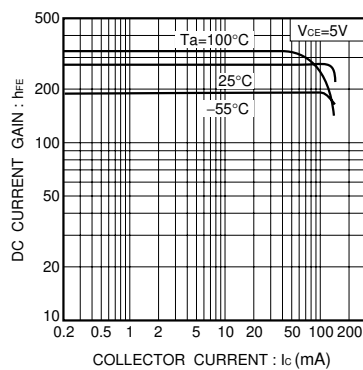Fig.4 DC current gain vs.
collector current (I)

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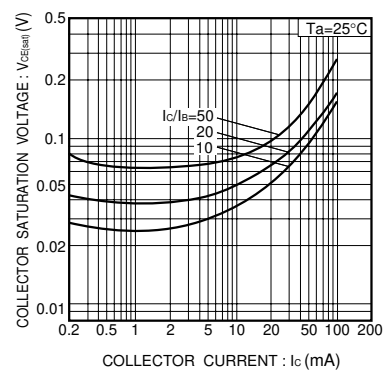collector current (II)

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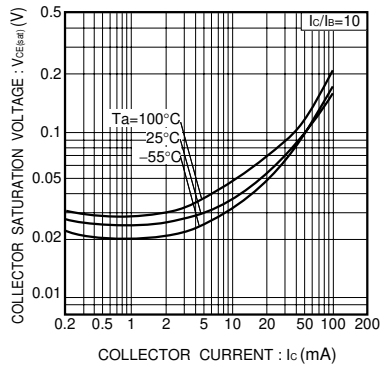voltage vs. collector current

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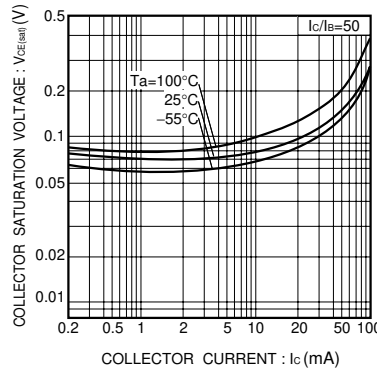voltage vs. collector current (I)

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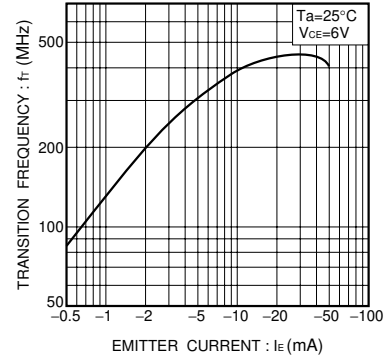voltage vs. collector current (II)

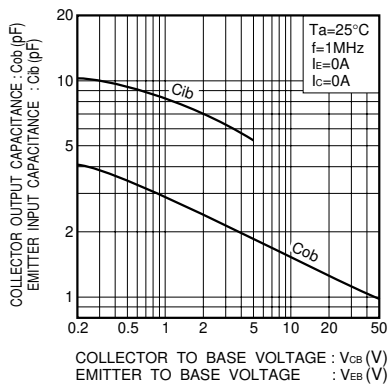Fig.9 Gain bandwidth product vs.
emitter current

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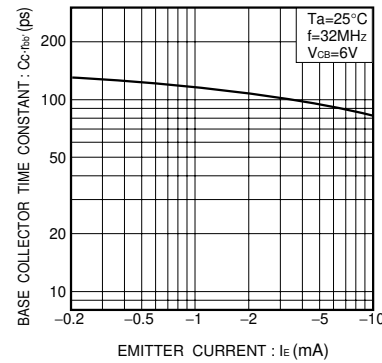emitter-base voltage

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

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