General purpose transistors (dual transistors)

EMX1 / UMX1N / IMX1

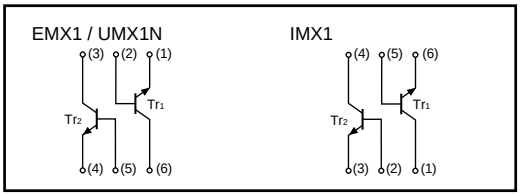
●Features

1) Two 2SC2412K 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.
4) Mounting cost and area can be cut in half.

●Structure

Epitaxial planar type
NPN silicon transistor

●Equivalent circuit



The following characteristics apply to both Tr_1 and Tr_2.

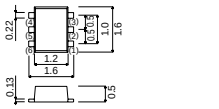
●Absolute maximum ratings (Ta = 25°C)

Parameter		Symbol	Limits	Unit
Collector-base voltage		V_{CBO}	60	V
Collector-emitter voltage		V_{CEO}	50	V
Emitter-base voltage		V_{EBO}	7	V
Collector current		I_C	150	mA
Power dissipation	EMX1, UMX1N	P_C	150 (TOTAL)	mW ∗1
	IMX1		300 (TOTAL)	mW ∗2
Junction temperature		Tj	150	˚C
Storage temperature		Tstg	−55~+150	˚C

∗1 120mW per element must not be exceeded.
∗2 200mW per element must not be exceeded.

●External dimensions (Units : mm)

EMX1

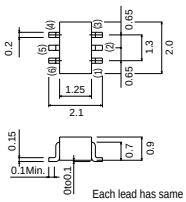


Each lead has same dimensions

ROHM : EMT6

Abbreviated symbol : X1

UMX1N

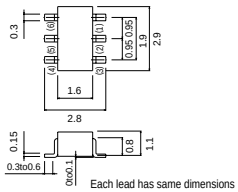


Each lead has same dimensions

ROHM : UMT6
EIAJ : SC-88

Abbreviated symbol : X1

IMX1



Each lead has same dimensions

ROHM : SMT6
EIAJ : SC-74

Abbreviated symbol : X1

●Electrical characteristics (Ta = 25°C)

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

●Packaging specifications

Type	Package	Taping		
	Code	T2R	TN	T110
	Basic ordering unit (pieces)	8000	3000	3000
EMX1		○	—	—
UMX1N		—	○	—
IMX1		—	—	○

●Electrical characteristic curves

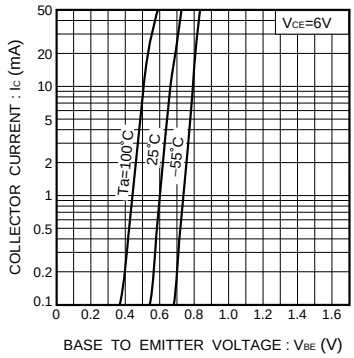


Fig.1 Grounded emitter propagation characteristics

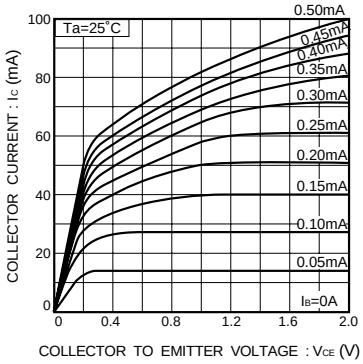


Fig.2 Grounded emitter output characteristics (I)

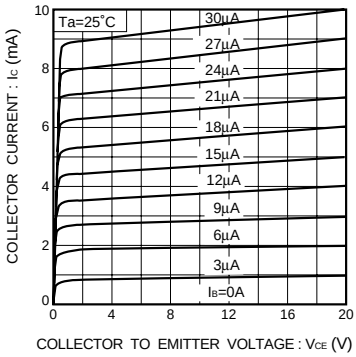


Fig.3 Grounded emitter output characteristics (II)

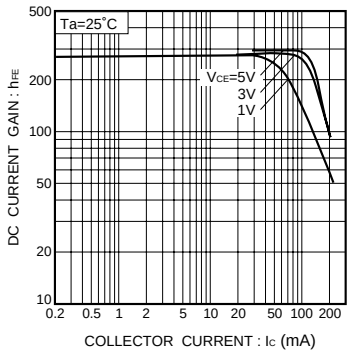


Fig.4 DC current gain vs. collector current (I)

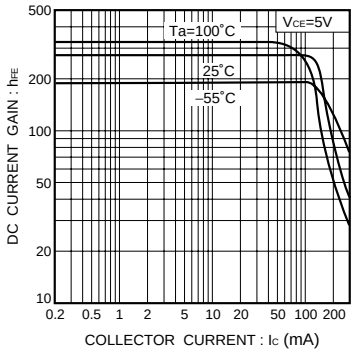


Fig.5 DC current gain vs. collector current (II)

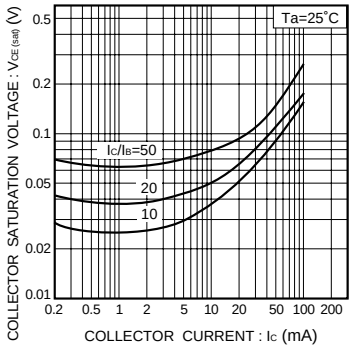


Fig.6 Collector-emitter saturation voltage vs. collector current

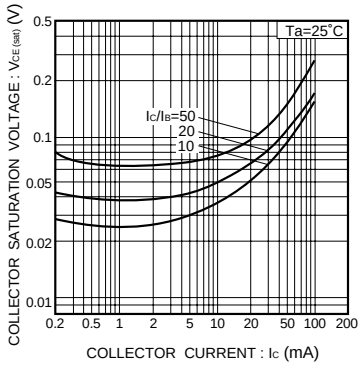


Fig.7 Collector-emitter saturation voltage vs. collector current (I)

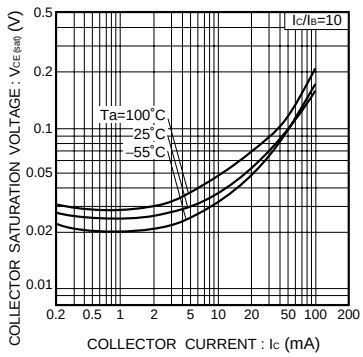


Fig.8 Collector-emitter saturation voltage vs. collector current (II)

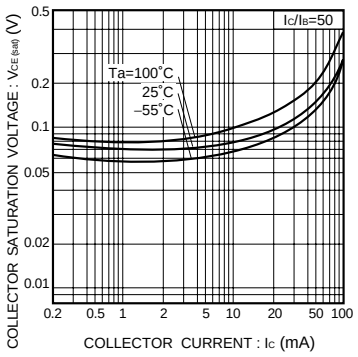


Fig.9 Collector-emitter saturation voltage vs. collector current (III)

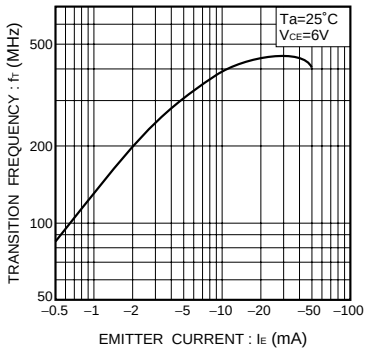


Fig.10 Gain bandwidth product vs. emitter current

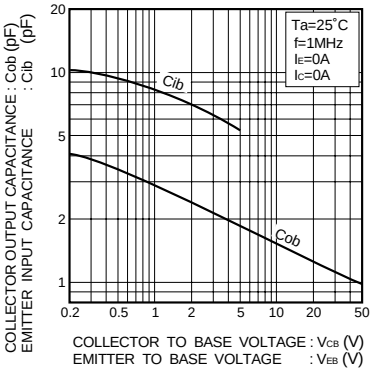


Fig.11 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

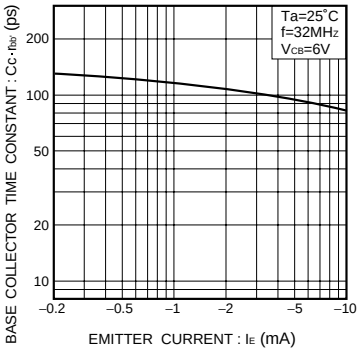


Fig.12 Base-collector time constant vs. emitter current

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