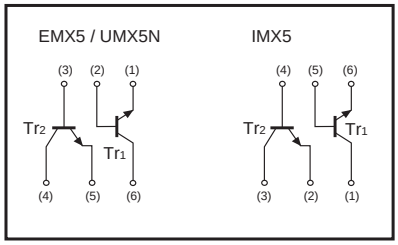
High transition frequency (dual transistors)

EMX5 / UMX5N / IMX5

●Features

1) Two 2SC3838K chips in a EMT or UMT or SMT package.
2) High transition frequency. (f_T=3.2GHz)
3) Low output capacitance. (Cob=0.9pF)

●Inner circuits



●Absolute maximum ratings (Ta=25°C)

Parameter		Symbol	Limits	Unit	
Collector-base voltage		V_{CBO}	20	V	
Collector-emitter voltage		V_{CEO}	11	V	
Emitter-base voltage		V_{EBO}	3	V	
Collector current		I_C	50	mA	
Collector power dissipation	EMX5 / UMX5N	Pc	150(TOTAL)	mW	∗1
	IMX5		300(TOTAL)		∗2
Junction temperature		Tj	150	°C	
Storage temperature		Tstg	−55 to +150	°C	

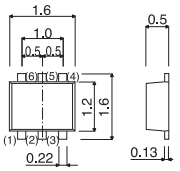
∗1 120mW per element must not be exceeded.
∗2 200mW per element must not be exceeded.

●Package, marking, and packaging specifications

Type	EMX5	UMX5N	IMX5
Package	EMT6	UMT6	SMT6
Marking	X5	X5	X5
Code	T2R	TR	T108
Basic ordering unit (pieces)	8000	3000	3000

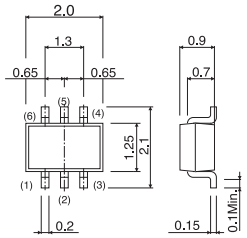
●Dimensions (Unit : mm)

EMX6



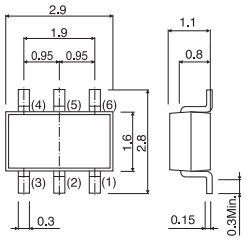
ROHM : EMT6 Each lead has same dimensions

UMX5N



ROHM : UMT6
EIAJ : SC-88 Each lead has same dimensions

IMX5



ROHM : SMT6
EIAJ : SC-74 Each lead has same dimensions

This product might cause chip aging and breakdown under the large electrified environment.
Please consider to design ESD protection circuit.

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	20	–	–	V	I_C=10μA
Collector-emitter breakdown voltage	BV_{CEO}	11	–	–	V	I_C=1mA
Emitter-base breakdown voltage	BV_{EBO}	3	–	–	V	I_E=10μA
Collector cutoff current	I_{CBO}	–	–	0.5	μA	V_{CB}=10V
Emitter cutoff current	I_{EBO}	–	–	0.5	μA	V_{EB}=2V
DC current transfer ratio	h_{FE}	56	–	120	–	V_{CE}/I_C=10V/5mA
Collector-emitter saturation voltage	$V_{CE(sat)}$	–	–	0.5	V	I_C/I_B=10mA/5mA
Transition frequency	f_T	1.4	3.2	–	GHz	V_{CE}/I_E=10V/–10mA, f=500MHz ＊
Output capacitance	Cob	–	0.9	1.55	pF	V_{CB}/f=10V/1MHz, I_E=0A

＊Transition frequency of the device.

●Electrical characteristics curves

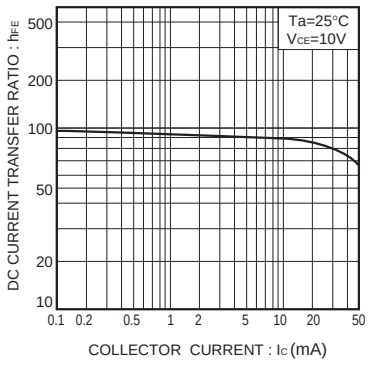


Fig.1 DC current gain vs. collector current

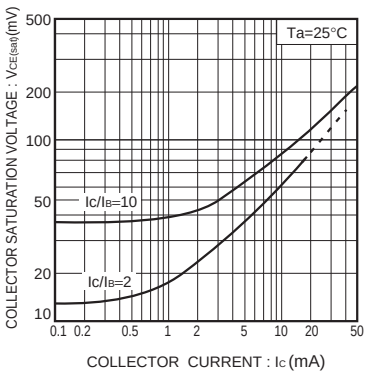


Fig.2 Collector-emitter saturation voltage vs. collector current

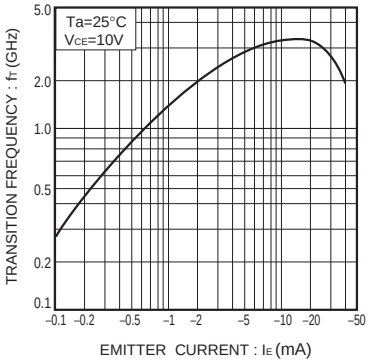


Fig.3 Gain bandwidth product vs. emitter current

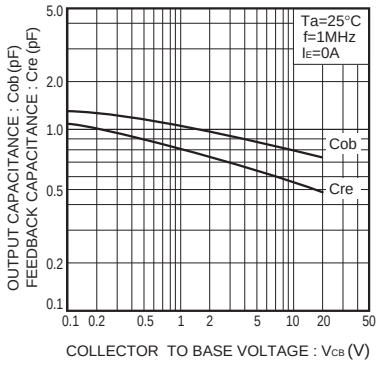


Fig.4 Capacitance vs. reverse bias voltage

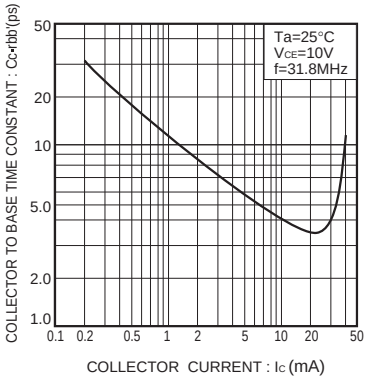


Fig.5 Collector to base time constant vs. collector current characteristics

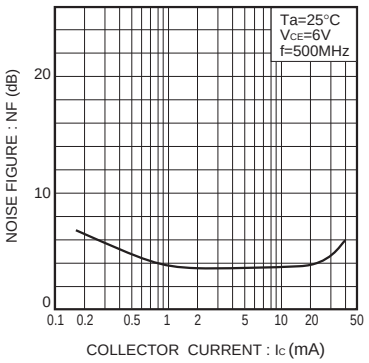


Fig.6 Noise factor vs. collector current characteristics

Notes

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