General purpose transistor (isolated transistor and diode)

EML4 / UML4N

2SC5585 and RB521S-30 are housed independently in a EMT5 or UMT5 package.

●Applications

DC / DC converter
Motor driver

●Features

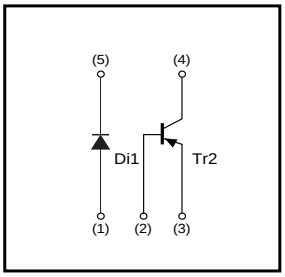
1) Tr : Low V_{CE}(sat)
   Di : Low V_F
2) Small package

●Structure

PNP Silicon epitaxial planar transistor
Schottky barrier diode

The following characteristics apply to both Di1 and Tr2.

●Equivalent circuit

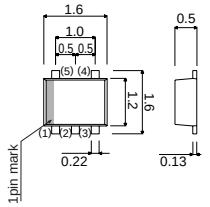


●Packaging specifications

Type	EML4	UML4N
Package	EMT5	UMT5
Marking	L4	L4
Code	T2R	TR
Basic ordering unit(pieces)	8000	3000

●Dimensions (Unit : mm)

EMT5

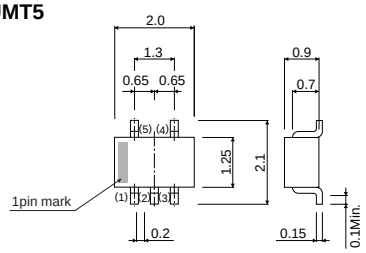


Each lead has same dimensions

Abbreviated symbol : L4

ROHM : EMT5

UMT5



Each lead has same dimensions

Abbreviated symbol : L4

ROHM : UMT5
EIAJ : SC-88A

●Absolute maximum ratings (Ta=25°C)

Di1

Parameter	Symbol	Limits	Unit
Average rectified forward current	I_O	200	mA
Forward current surge peak (60Hz, 1∞)	I_{FSM}	1	A
Reverse voltage (DC)	V_R	30	V
Junction temperature	Tj	125	°C

Tr2

Parameter	Symbol	Limits	Unit
Collector-base voltage	V_{CBO}	–15	V
Collector-emitter voltage	V_{CEO}	–12	V
Emitter-base voltage	V_{EBO}	–6	V
Collector current	I_C	–500	mA
	I_{CP}	–1	A
Power dissipation	Pd	120	mW *
Junction temperature	Tj	150	°C

* Each terminal mounted on a recommended.

Di1 / DTr2

Parameter	Symbol	Limits	Unit
Power dissipation	Pd	150	mW *
Storage temperature	Tstg	–55 to +125	°C

* Each terminal mounted on a recommended.

●Electrical characteristics (Ta=25°C)

Di1

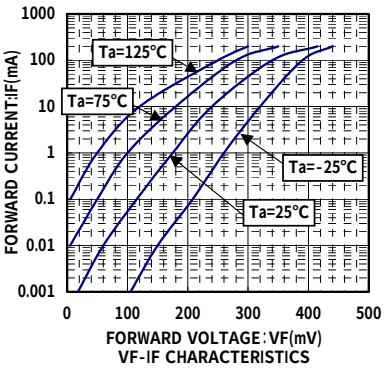
Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Forward voltage	V_F	–	0.40	0.50	V	I_F=200mA
Reverse current	I_R	–	4.0	30	μA	V_R=10V

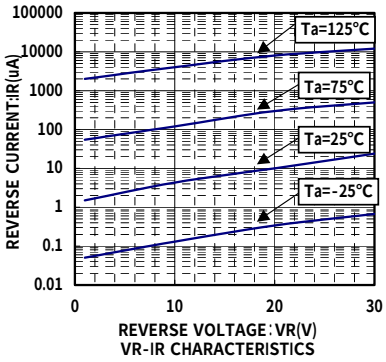
Tr2

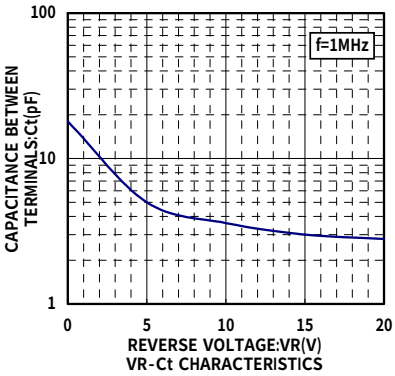
Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-emitter breakdown voltage	BV_{CEO}	–12	–	–	V	I_C=–1mA
Collector-base breakdown voltage	BV_{CBO}	–15	–	–	V	I_C=–10μA
Emitter-base breakdown voltage	BV_{EBO}	–6	–	–	V	I_E=–10μA
Collector cut-off current	I_{CBO}	–	–	–100	nA	V_{CB}=–15V
Emitter cut-off current	I_{EBO}	–	–	–100	nA	V_{EB}=–6V
Collector-emitter saturation voltage	$V_{CE(sat)}$	–	–100	–250	mV	I_C=–200mA, I_B=–10mA
DC current gain	h_{FE}	270	–	680	–	V_{CE}=–2V, I_C=–10mA
Transition frequency	f_T	–	260	–	MHz	V_{CE}=–2V, I_E=10mA, f=100MHz
Collector output capacitance	Cob	–	6.5	–	pF	V_{CB}=–10V, I_E=0mA, f=1MHz

●**Electrical characteristic curves**

Di1







Tr2

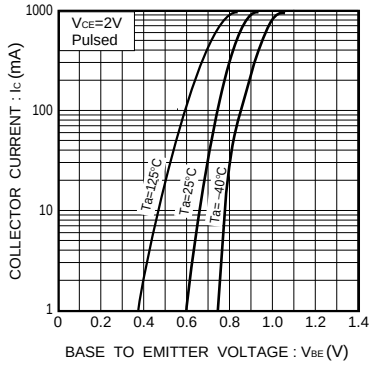


Fig.3 Grounded emitter propagation characteristics

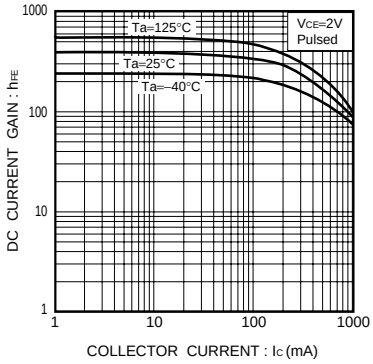


Fig.4 DC current gain vs. collector current

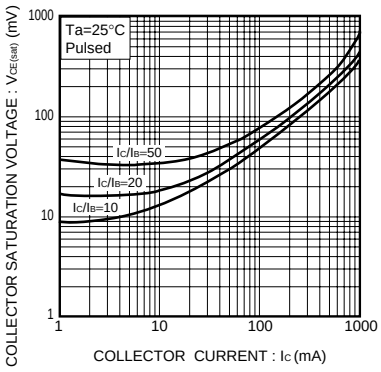


Fig.5 Collector-emitter saturation voltage vs. collector current (I)

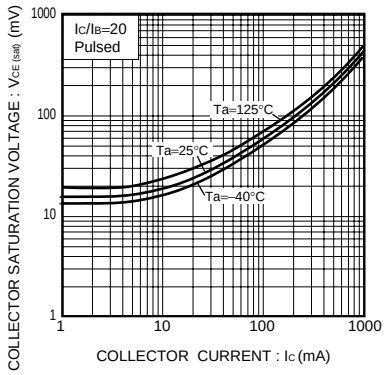


Fig.6 Collector-emitter saturation voltage vs. collector current (II)

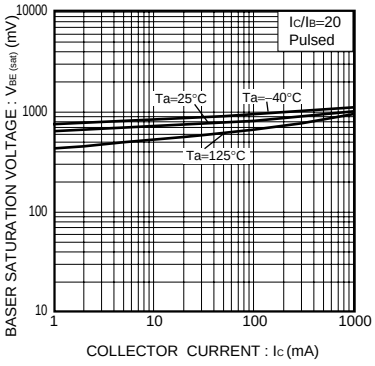


Fig.7 Base-emitter saturation voltage vs. collector current

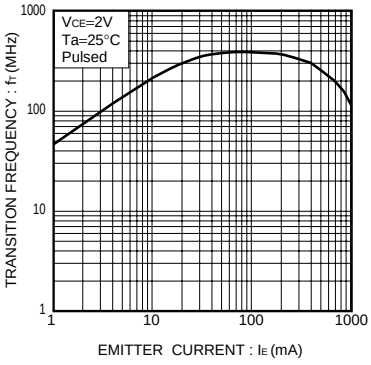


Fig.8 Gain bandwidth product vs. emitter current

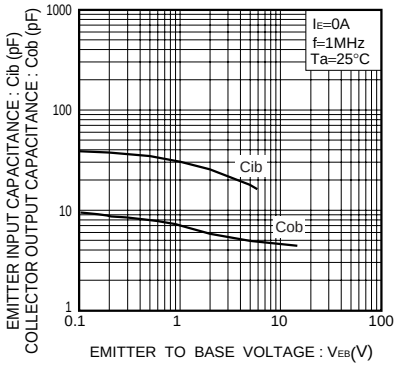


Fig.9 Collector output capacitance
vs. collector-base voltage
Emitter input capacitance
vs. emitter-base voltage

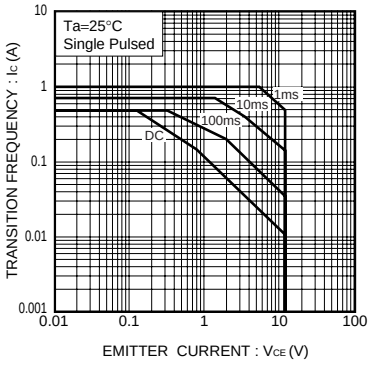


Fig.10 Safe operation area

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