

General purpose transistor (isolated transistor and diode)

EML6 / UML6N

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

●Applications

DC / DC converter
Motor driver

●Features

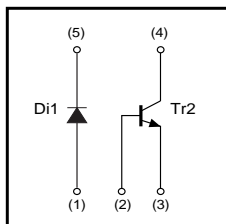
- 1) Tr : Low $V_{CE(sat)}$
Di : Low V_F
- 2) Small package

●Structure

Silicon epitaxial planar transistor
Schottky barrier diode

The following characteristics apply to both Di1 and Tr2.

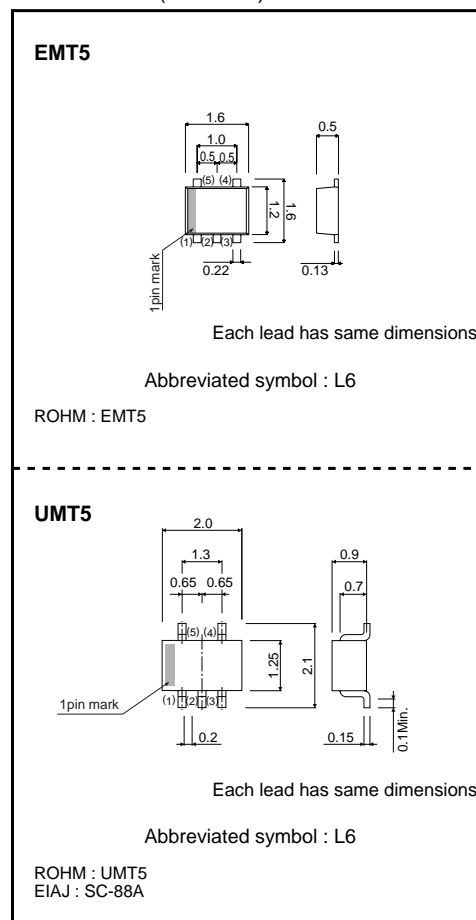
●Equivalent circuit (EML6 / UML6N)



●Packaging specifications

Type	EML6	UML6N
Package	EMT5	UMT5
Marking	L6	L6
Code	T2R	TR
Basic ordering unit (pieces)	8000	3000

●Dimensions (Unit : mm)



Transistors

●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	T _j	125	°C

Tr2

Parameter	Symbol	Limits	Unit
Collector-base voltage	V _{CB0}	15	V
Collector-emitter voltage	V _{CE0}	12	V
Emitter-base voltage	V _{EB0}	6	V
Collector current	I _c	500	mA
	I _{CP}	1	A
Power dissipation	P _d	120	mW *1
Junction temperature	T _j	150	°C

*1 Each terminal mounted on a recommended.

Di1 / Tr2

Parameter	Symbol	Limits	Unit
Power dissipation	P _d	150	mW *
Storage temperature	T _{stg}	-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

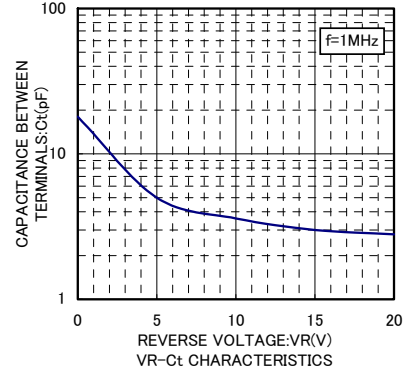
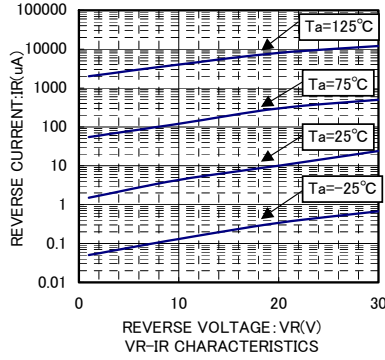
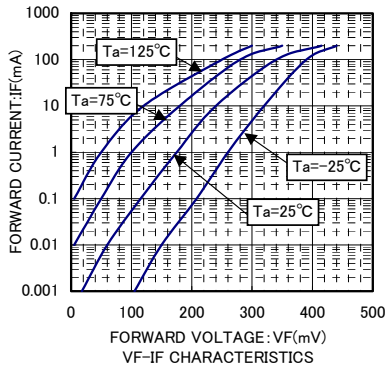
Tr2

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-emitter breakdown voltage	BV _{CEO}	12	–	–	V	I _c =1mA
Collector-base breakdown voltage	BV _{CB0}	15	–	–	V	I _c =10μA
Emitter-base breakdown voltage	BV _{EB0}	6	–	–	V	I _E =10μA
Collector cut-off current	I _{CB0}	–	–	100	nA	V _{CB} =15V
Emitter cut-off current	I _{EB0}	–	–	100	nA	V _{EB} =6V
Collector-emitter saturation voltage	V _{CE(sat)}	–	90	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	–	320	–	MHz	V _{CE} =2V, I _E =–10mA, f=100MHz
Collector output capacitance	C _{ob}	–	7.5	–	pF	V _{CB} =10V, I _E =0mA, f=1MHz

Transistors

●Electrical characteristic curves

Di1



Tr2

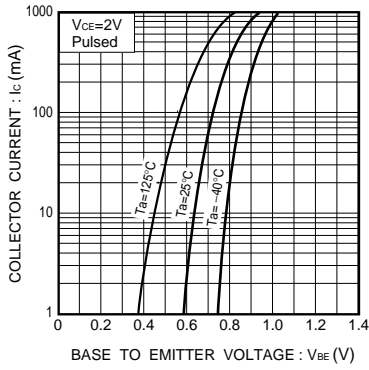


Fig.3 Grounded emitter propagation characteristics

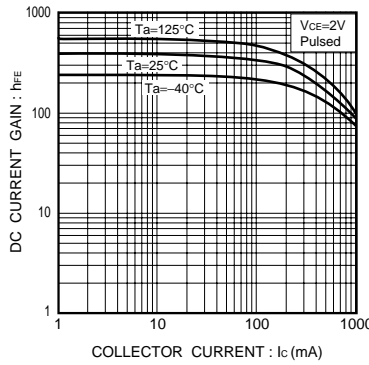


Fig.4 DC current gain vs. collector current

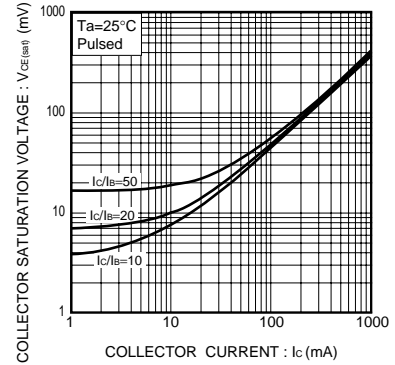


Fig.5 Collector-emitter saturation voltage vs. collector current (I)

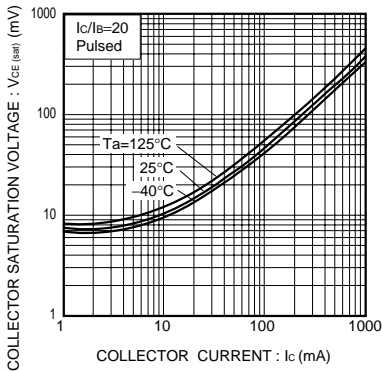


Fig.6 Collector-emitter saturation voltage vs. collector current (II)

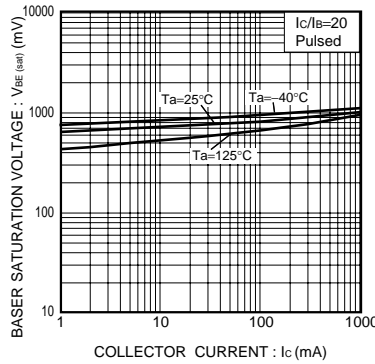


Fig.7 Base-emitter saturation voltage vs. collector current

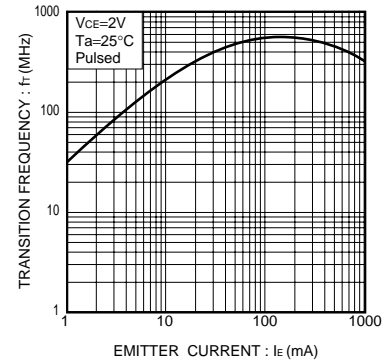


Fig.8 Gain bandwidth product vs. emitter current

Transistors

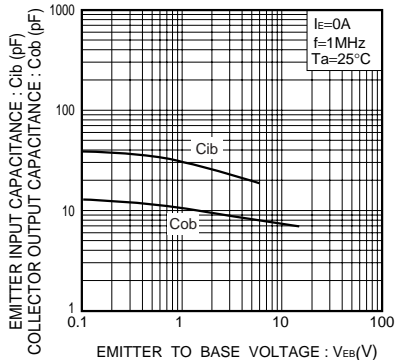


Fig.9 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

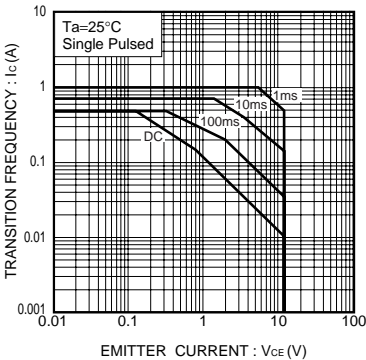


Fig.10 Safe operation area

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