General purpose transistor (isolated transistor and diode)

UML6N

2SA2018 and RB521S-30 are housed independently in a UMT package.

●Applications

DC / DC converter
Motor driver

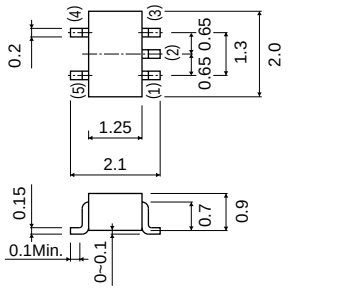
●Features

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

●Structure

Silicon epitaxial planar transistor
Schottky barrier diode

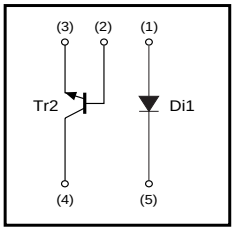
●External dimensions (Unit : mm)



Each lead has same dimensions

ROHM : UMT5
EIAJ : SC-88A

●Equivalent circuit



●Packaging specifications

Type	UML6N
Package	UMT5
Marking	L6
Code	TR
Basic ordering unit (pieces)	3000

●Absolute maximum ratings (Ta=25°C)

Di1

Parameter	Symbol	Limits	Unit
Average revtified 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
Range of storage temperature	Tstg	−55~+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	P_d	120	mW *1
Junction temperature	Tj	150	°C
Range of storage temperature	Tstg	−55~+125	°C

*1 Each terminal mounted on a recommended land.

●Electrical characteristics (Ta=25°C)

Di1

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Forward voltage	V_R	–	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	$V_{CE(sat)}$	–	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	Cob	–	7.5	–	pF	V_{CB}=10V, I_E=0mA, f=1MHz

●Electrical characteristic curves

Di1

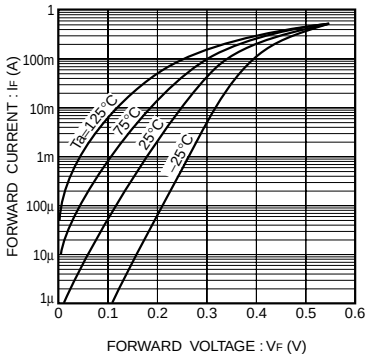


Fig.1 Forward characteristics

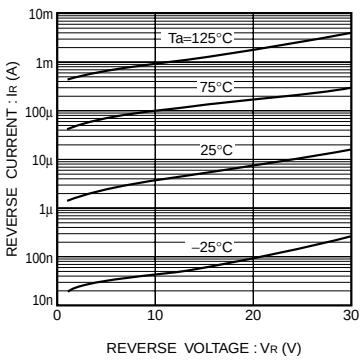


Fig.2 Reverse characteristics

Tr2

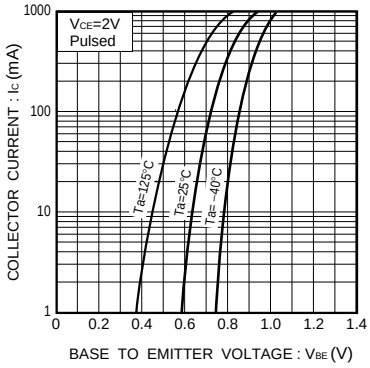


Fig.3 Grounded emitter propagation characteristics

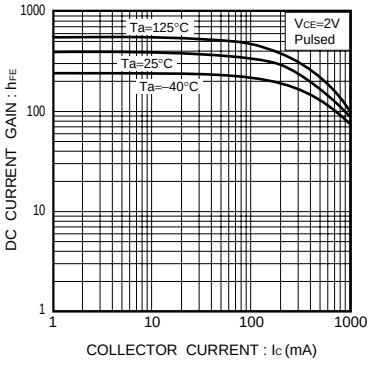


Fig.4 DC current gain vs. collector current

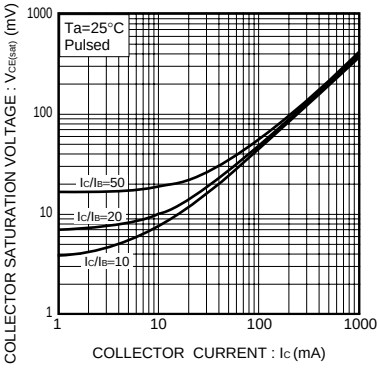


Fig.5 Collector-emitter saturation voltage vs. collector current (I)

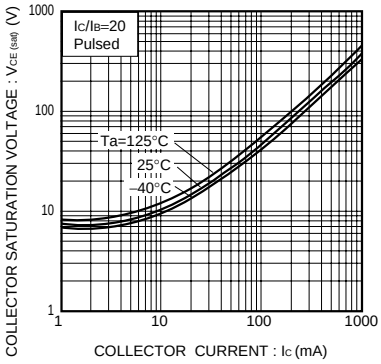


Fig.6 Collector-emitter saturation voltage vs. collector current (II)

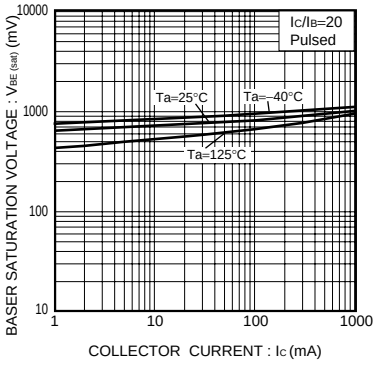


Fig.7 Base-emitter saturation voltage vs. collector current

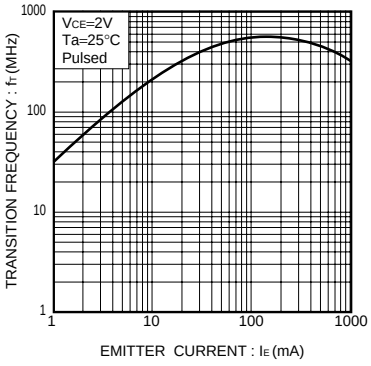


Fig.8 Gain bandwidth product vs. emitter current

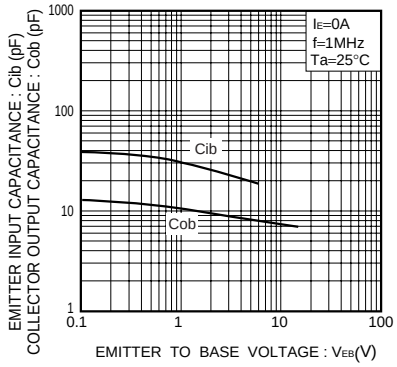


Fig.9 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

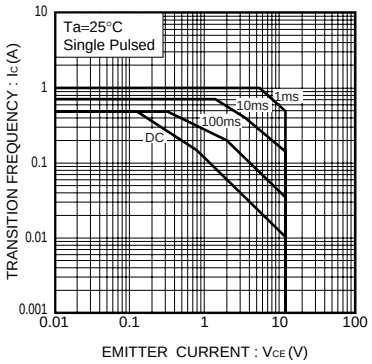


Fig.10 Safe operation area

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