

# Low frequency transistor

## 2SA2018 / 2SA2030 / 2SA2119K

The transistor of 500mA class which went only into 2125 size conventionally was attained in 1608 sizes or 1208 sizes.

### ●Applications

For switching, for muting.

### ●Features

- 1) A collector current is large.
- 2) Collector saturation voltage is low.

$$V_{CE(sat)} \leq 250\text{mV}$$

$$\text{At } I_C = -200\text{mA} / I_B = -10\text{mA}$$

### ●Absolute maximum ratings (Ta=25°C)

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 *	
Collector power dissipation	$P_C$	VMT3	150	mW
		EMT3	150	
		SMT3	200	
Junction temperature	$T_j$	150	°C	
Storage temperature	$T_{stg}$	-55 to +150	°C	

\*Single pulse, Pw=1ms

### ●Dimensions (Unit : mm)

<p>2SA2018</p> <p>Each lead has same dimensions</p> <p>ROHM : EMT3      Abbreviated symbol : BW      (1) Emitter EIAJ : SC-75A      (2) Base JEDEC : SOT-416      (3) Collector</p>
<p>2SA2030</p> <p>Each lead has same dimensions</p> <p>ROHM : VMT3      Abbreviated symbol : BW      (1) Base (2) Emitter (3) Collector</p>
<p>2SA2119K</p> <p>Each lead has same dimensions</p> <p>ROHM : SMT3      Abbreviated symbol : BW      (1) Emitter EIAJ : SC-59      (2) Base JEDEC : SOT-346      (3) Collector</p>

### ●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	$BV_{CB0}$	-15	-	-	V	$I_C = -10\mu\text{A}$
Collector-emitter breakdown voltage	$BV_{CE0}$	-12	-	-	V	$I_C = -1\text{mA}$
Emitter-base breakdown voltage	$BV_{EB0}$	-6	-	-	V	$I_E = -10\mu\text{A}$
Collector cutoff current	$I_{CBO}$	-	-	-100	nA	$V_{CB} = -15\text{V}$
Emitter cutoff current	$I_{EBO}$	-	-	-100	nA	$V_{EB} = -6\text{V}$
DC current transfer ratio	$h_{FE}$	270	-	680	-	$V_{CE} = -2\text{V} / I_C = -10\text{mA}$
Collector-emitter saturation voltage	$V_{CE(sat)}$	-	-100	-250	mV	$I_C = -200\text{mA} / I_B = -10\text{mA}$
Transition frequency	$f_T$	-	260	-	MHz	$V_{CE} = -2\text{V}, I_E = 10\text{mA}, f_T = 100\text{MHz}$
Output capacitance	$C_{ob}$	-	6.5	-	pF	$V_{CB} = -10\text{V}, I_E = 0\text{A}, f = 1\text{MHz}$

Transistors

●Packaging specifications and hFE

Type	hFE	Package name	Taping		
		Code	T146	TL	T2L
		Basic ordering unit (pieces)	3000	3000	8000
2SA2119K			○	-	-
2SA2018			-	○	-
2SA2030			-	-	○

●Electrical characteristic curves

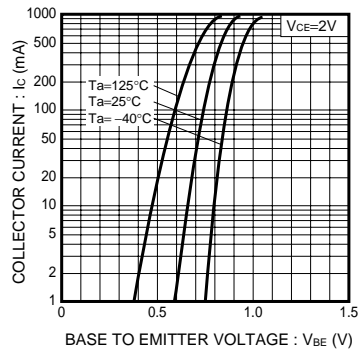


Fig.1 Grounded Emitter Propagation Characteristics

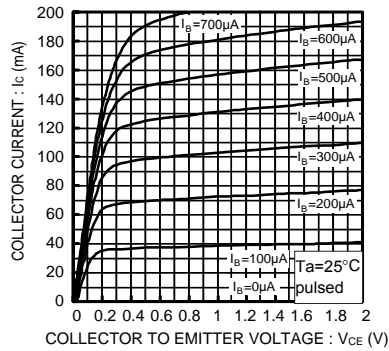


Fig.2 Typical Output Characteristics

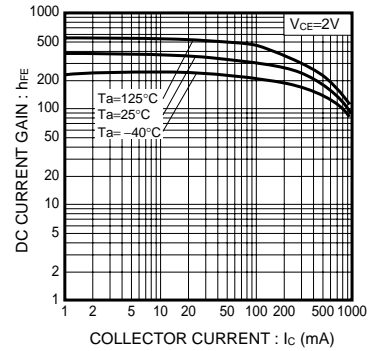


Fig.3 DC Current Gain vs. Collector Current

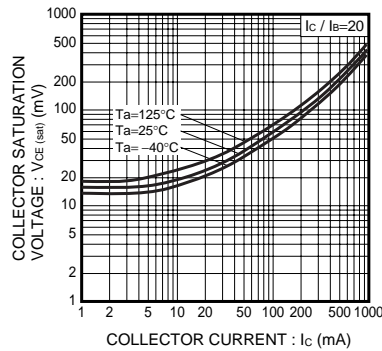


Fig.4 Collector-Emitter Saturation Voltage vs. Collector Current (I)

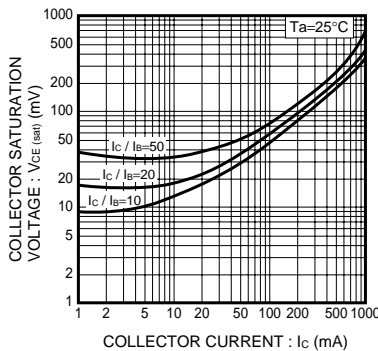


Fig.5 Collector-Emitter Saturation Voltage vs. Collector Current (II)

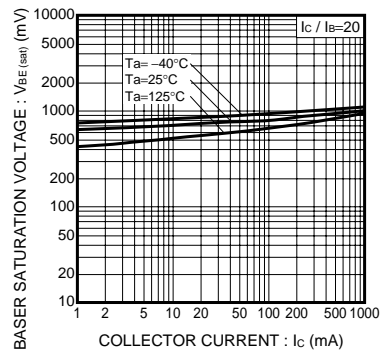


Fig.6 Base-Emitter Saturation Voltage vs. Collector Current

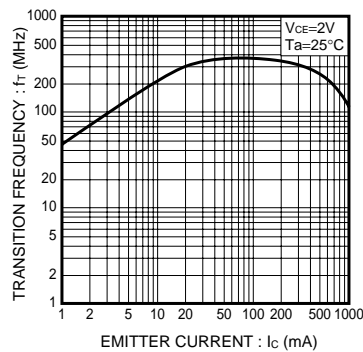


Fig.7 Gain Bandwidth Product vs. Emitter Current

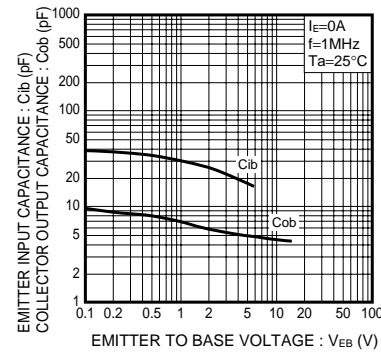


Fig.8 Collector Output Capacitance vs. Collector-Base Voltage  
Emitter Input Capacitance vs. Emitter-Base Voltage

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