

**2SA1898****DC/DC Converter Application****Applications**

- High-speed switching.

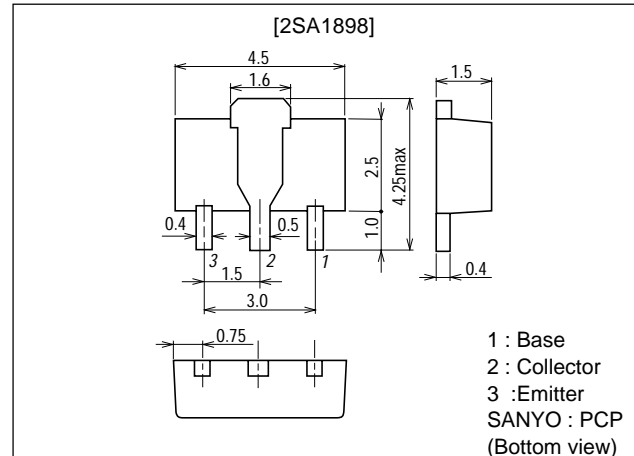
**Features**

- Adoption of FBET and MBIT processes.
- Large current capacity.
- Low collector-to-emitter saturation voltage.
- Fast switching speed.

**Package Dimensions**

unit:mm

2038A

**Specifications****Absolute Maximum Ratings** at  $T_a = 25^\circ\text{C}$ 

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	$V_{CB0}$		-15	V
Collector-to-Emitter Voltage	$V_{CEO}$		-15	V
Emitter-to-Base Voltage	$V_{EBO}$		-5	V
Collector Current	$I_C$		-3	A
Collector Current (Pulse)	$I_{CP}$		-5	A
Base Current	$I_B$		-600	mA
Collector Dissipation	$P_C$	Mounted on ceramic board (250mm <sup>2</sup> ×0.8mm)	1.3	W
Junction Temperature	$T_J$		150	°C
Storage Temperature	$T_{stg}$		-55 to +150	°C

**Electrical Characteristics** at  $T_a = 25^\circ\text{C}$ 

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=-12\text{V}, I_E=0$			-1	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=-3\text{V}, I_C=0$			-1	$\mu\text{A}$
DC Current Gain	$h_{FE1}$	$V_{CE}=-2\text{V}, I_C=-0.5\text{A}$	100*		280*	
	$h_{FE2}$	$V_{CE}=-2\text{V}, I_C=-3\text{A}$	50			

Marking : AN

\* : The 2SA1898 is classified by 500A  $h_{FE}$  as follows :

Rank	R	S
$h_{FE}$	100 to 200	140 to 280

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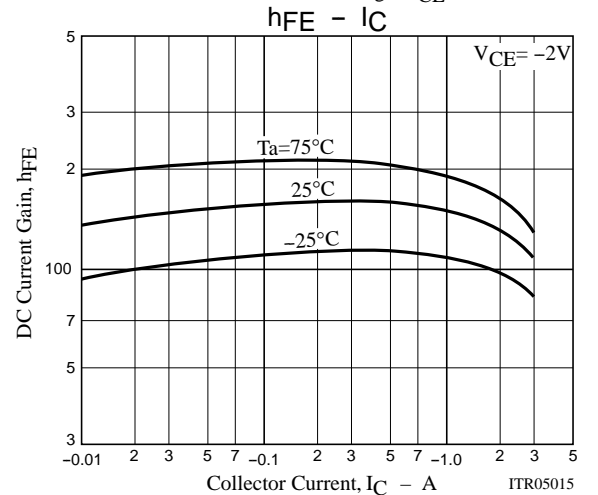
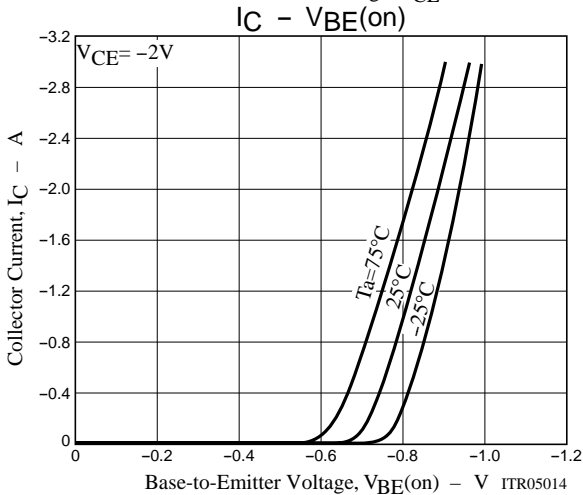
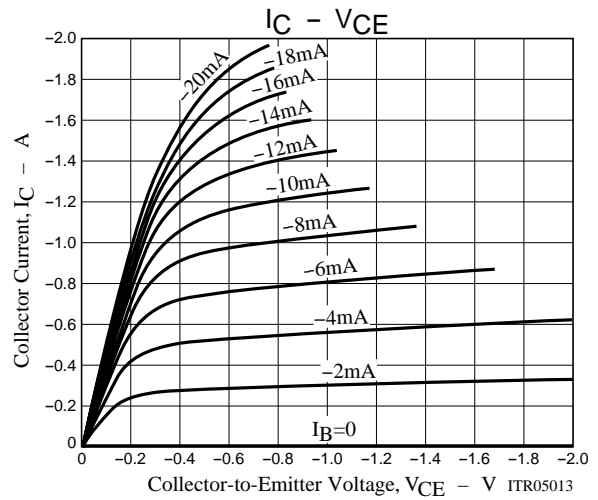
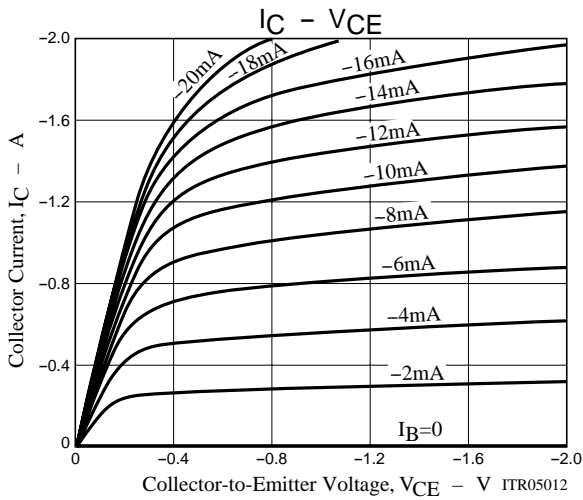
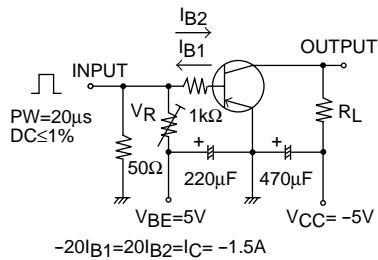
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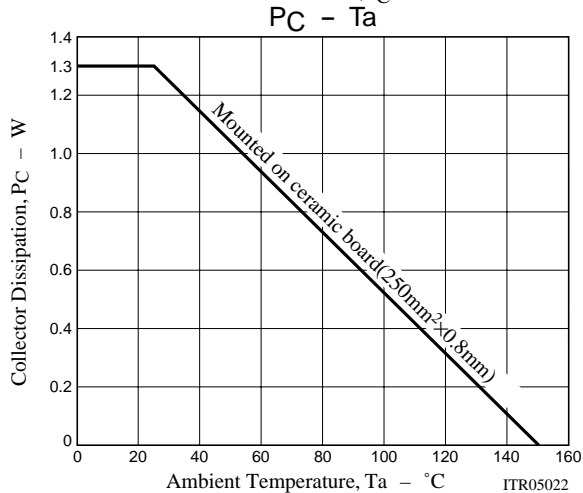
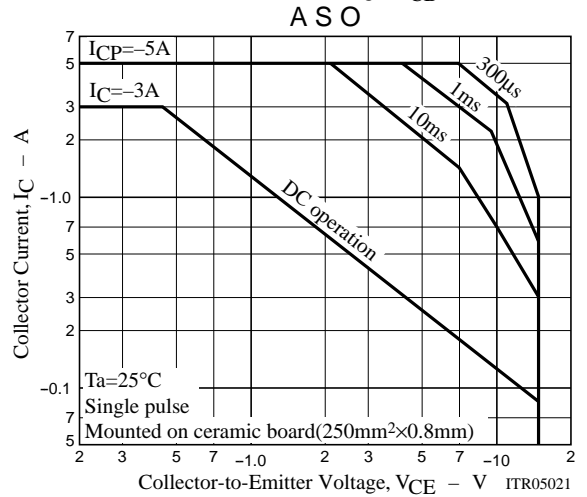
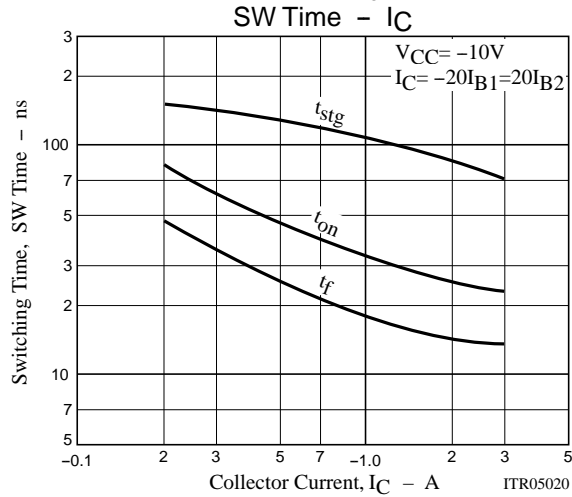
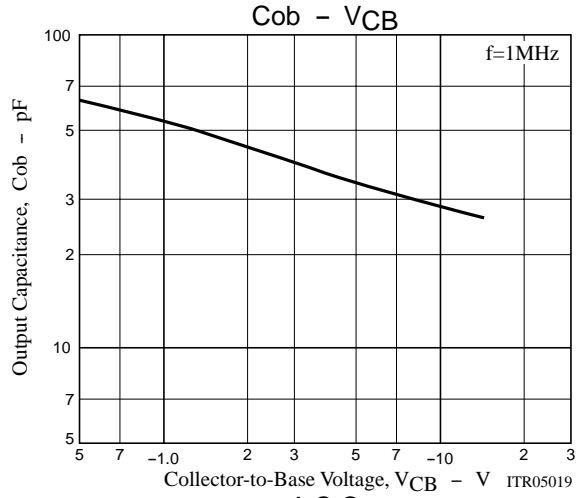
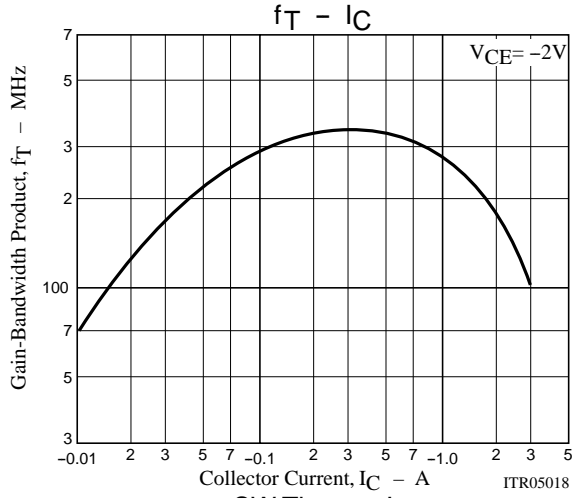
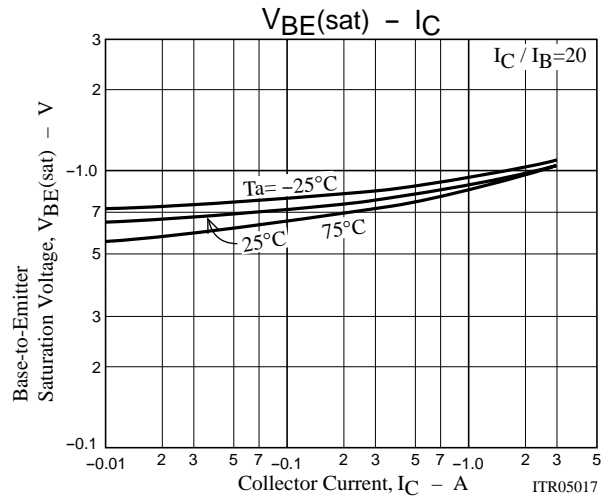
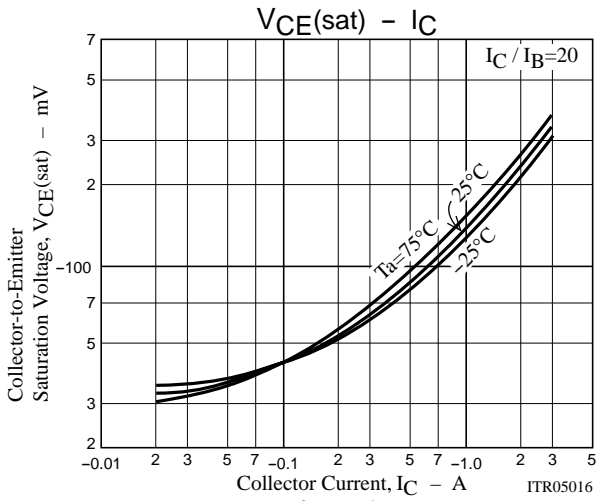
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Gain-Bandwidth Product	$f_T$	$V_{CE}=-2V, I_C=-0.3A$		300		MHz
Output Capacitance	$C_{ob}$	$V_{CB}=-10V, f=1MHz$		28		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=-1.5A, I_B=-75mA$		-0.25	-0.5	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=-1.5A, I_B=-75mA$		-0.95	-1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=-10\mu A, I_E=0$	-15			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=-1mA, R_{BE}=\infty$	-15			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=-10\mu A, I_C=0$	-5			V
Turn-ON Time	$t_{on}$	See specified Test Circuit.		30	60	ns
Storage Time	$t_{stg}$	See specified Test Circuit.		100	200	ns
Turn-OFF Time	$t_{off}$	See specified Test Circuit.		120	220	ns

## Switching Time Test Circuit



# 2SA1898



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