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SANYO Semiconductors

DATA SHEET

2SA2099 / 2SC5888 — PNP / NPN Epitaxial Planar Silicon Transistors High-Current Switching Applications

Applications

- Relay drivers, lamp drivers, motor drivers.

Features

- Adoption of MBIT process.
- High current capacitance.
- Low collector-to-emitter saturation voltage.
- High-speed switching.

Specifications () : 2SA2099

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V _{CB0}		(-50)60	V
Collector-to-Emitter Voltage	V _{CEO}		(-)50	V
Emitter-to-Base Voltage	V _{EBO}		(-)6	V
Collector Current	I _C		(-)10	A
Collector Current (Pulse)	I _{CP}		(-)13	A
Base Current	I _B		(-)2	A
Collector Dissipation	P _C		2	W
		T _c =25°C	25	W
Junction Temperature	T _J		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C

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SANYO Semiconductor Co., Ltd.

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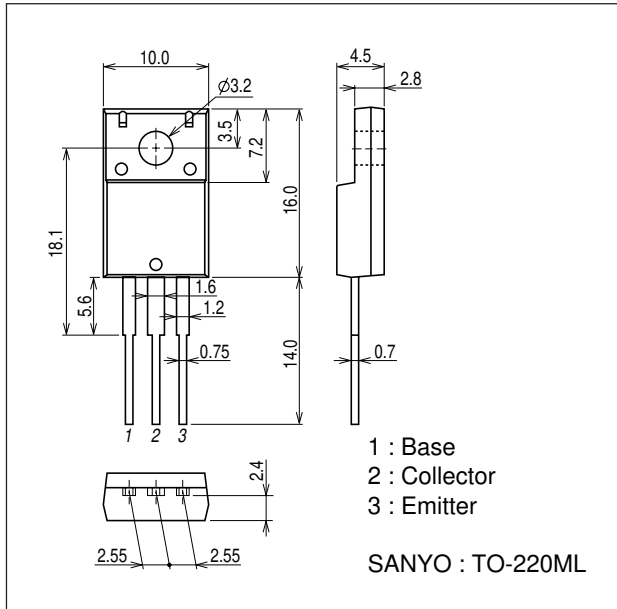
2SA2099 / 2SC5888

Electrical Characteristics at Ta=25°C

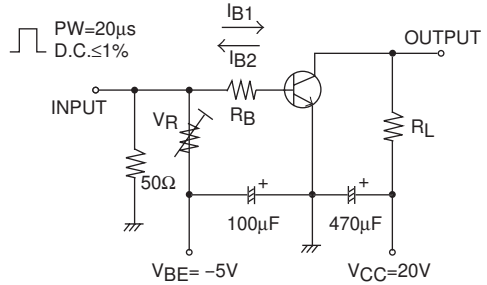
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB} = (-)40V, I_E = 0A$			(-)10	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = (-)4V, I_C = 0A$			(-)10	μA
DC Current Gain	h_{FE}	$V_{CE} = (-)2V, I_C = (-)1A$	200		(560)700	
Gain-Bandwidth Product	f_T	$V_{CE} = (-)5V, I_C = (-)1A$		(130)200		MHz
Output Capacitance	C_{ob}	$V_{CB} = (-)10V, f = 1MHz$		(90)60		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = (-)5A, I_B = (-)250mA$		(-250)180	(-500)360	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = (-)5A, I_B = (-)250mA$		(-)0.93	(-)1.4	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = (-)100\mu A, I_E = 0A$	(-50)60			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = (-)1mA, R_{BE} = \infty$	(-50)			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = (-)100\mu A, I_C = 0A$	(-6)			V
Turn-ON Time	t_{on}	See specified Test Circuit.		(70)40		ns
Storage Time	t_{stg}	See specified Test Circuit.		(650)1000		ns
Fall Time	t_f	See specified Test Circuit.		(60)80		ns

Package Dimensions

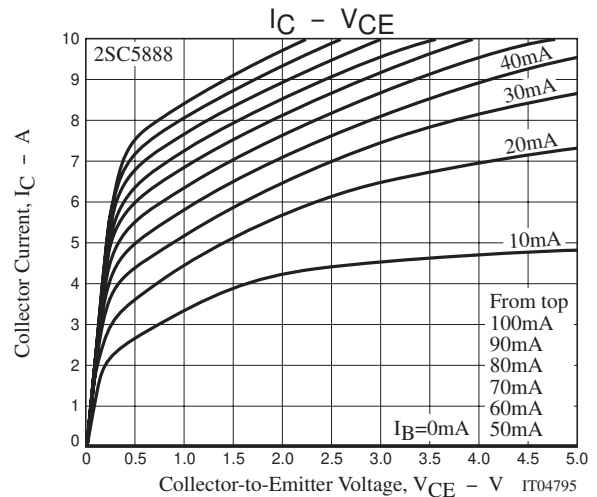
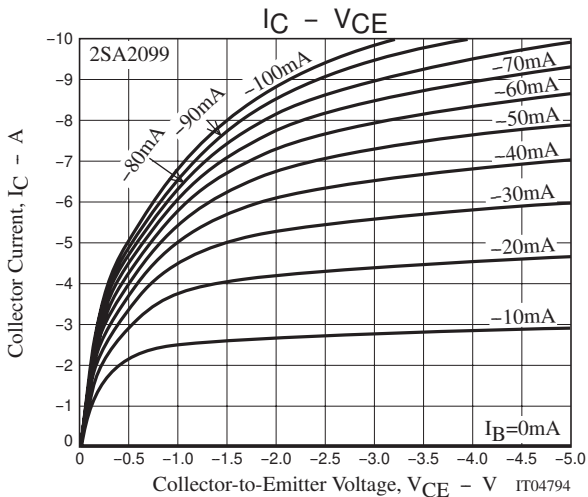
unit : mm (typ)
7508-002



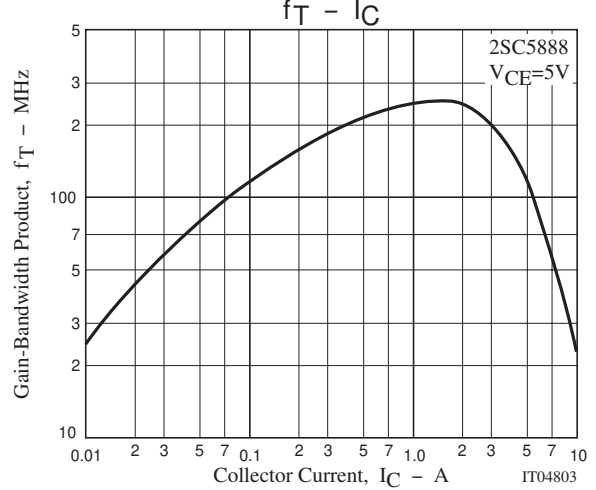
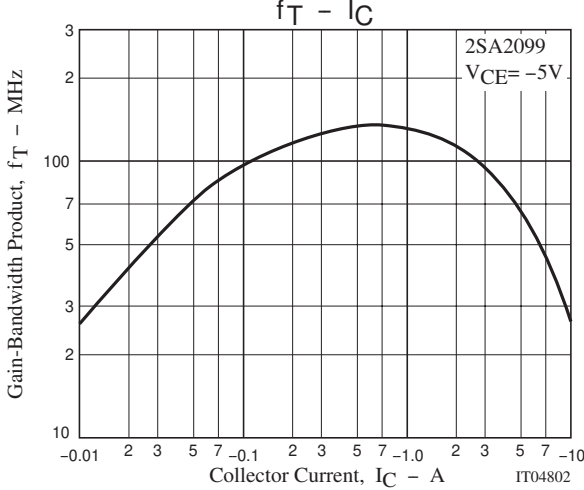
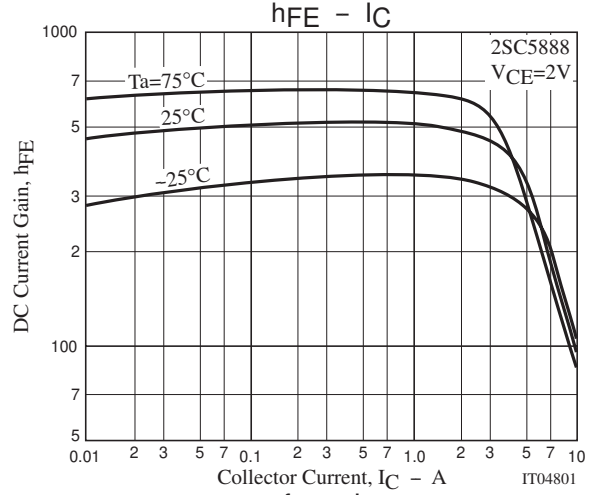
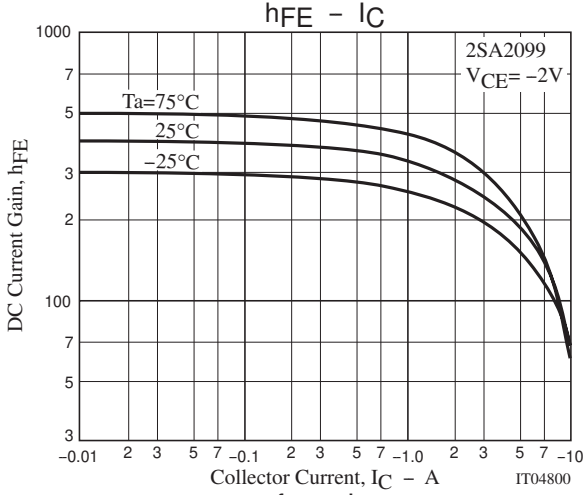
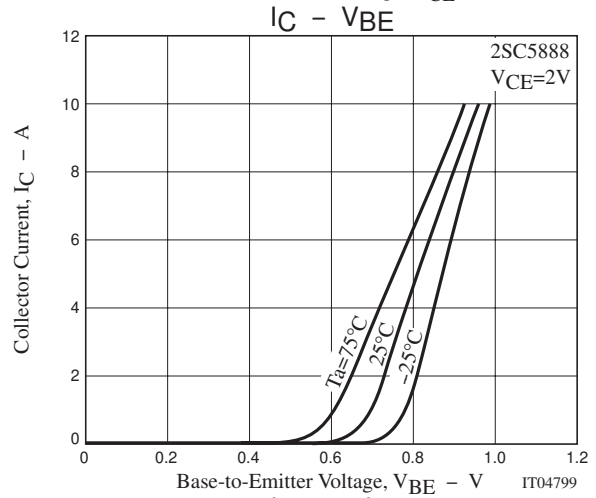
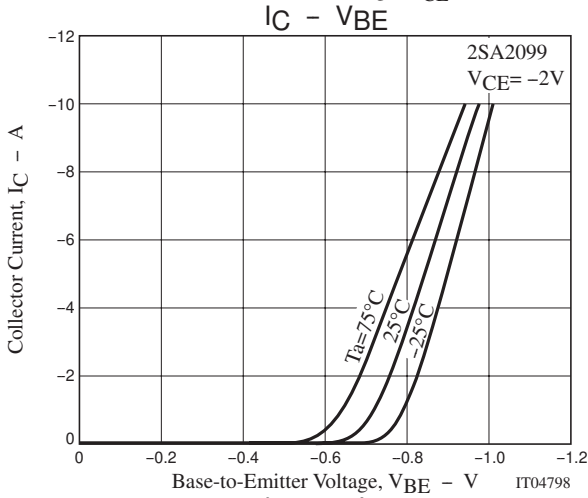
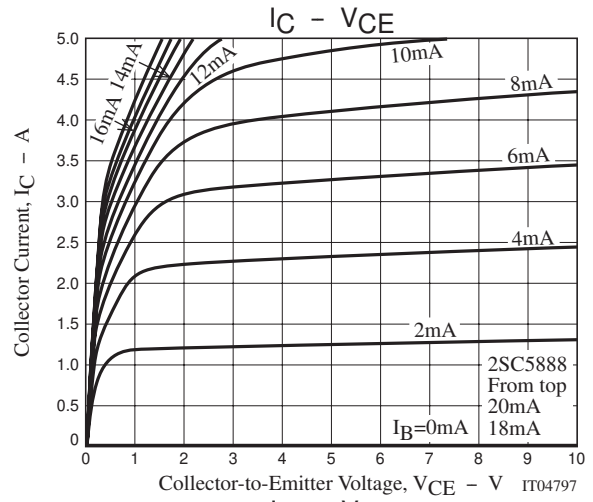
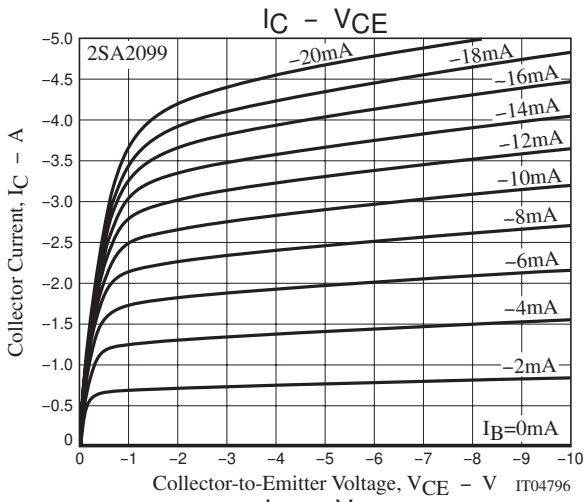
Switching Time Test Circuit

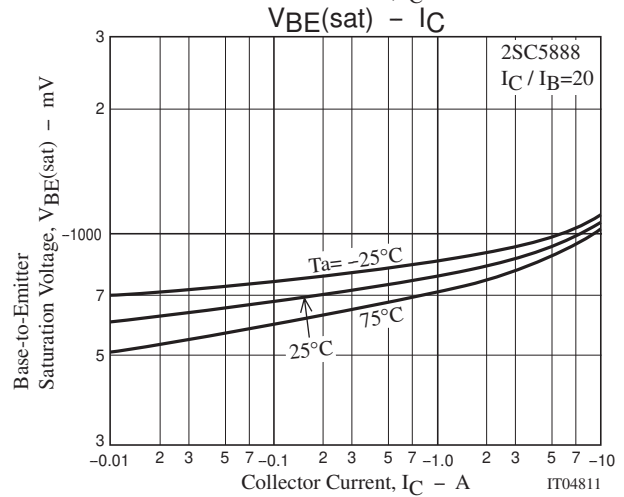
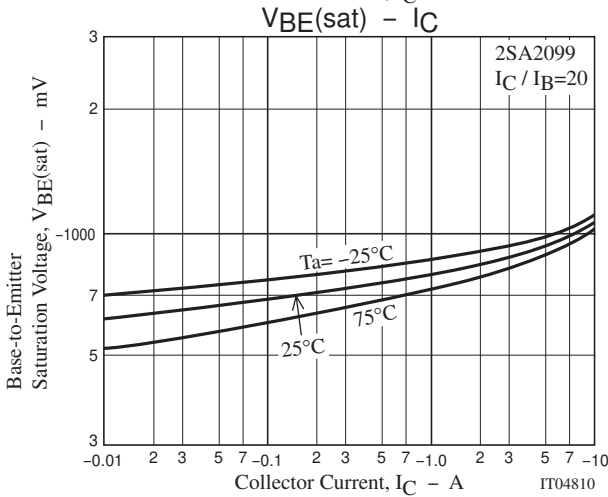
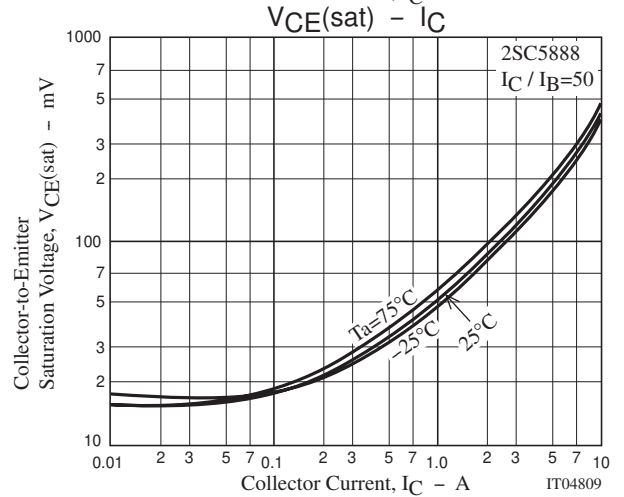
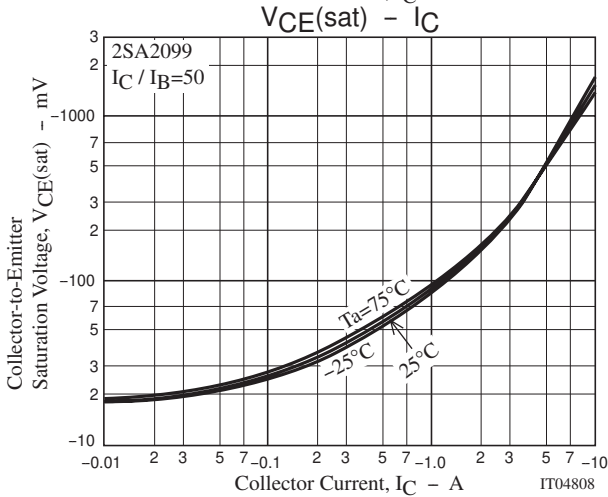
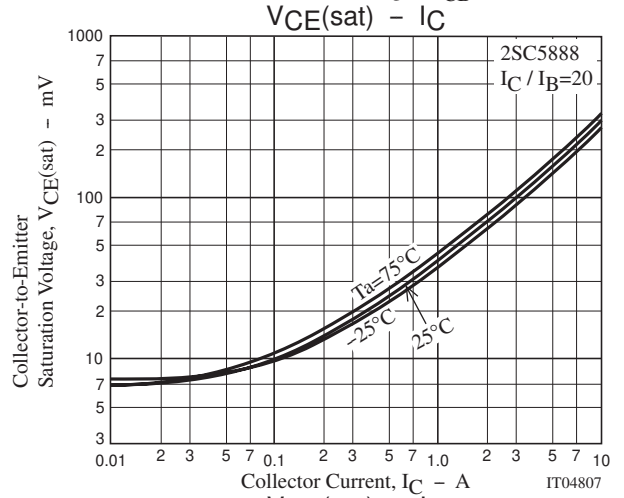
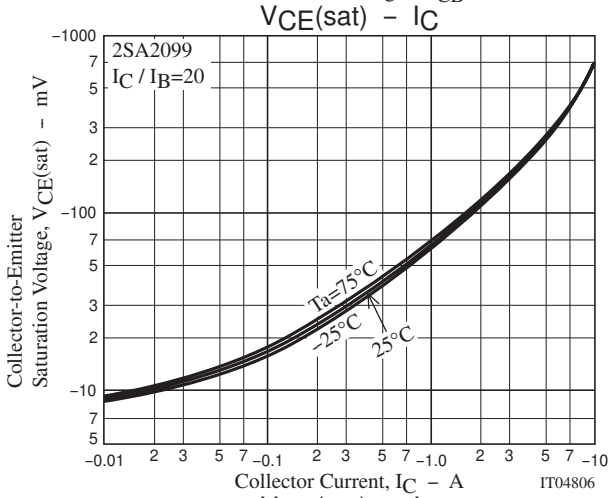
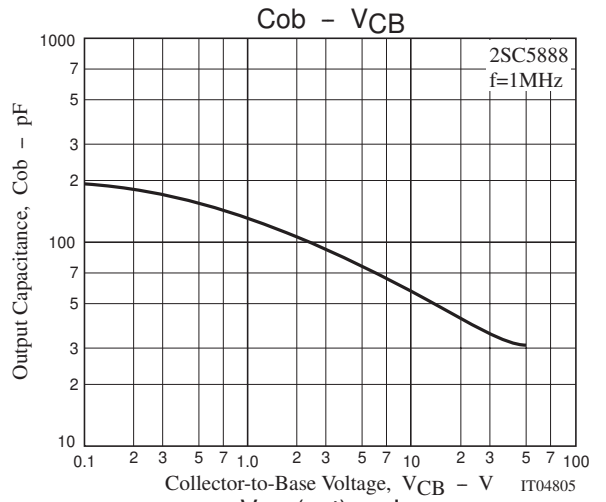
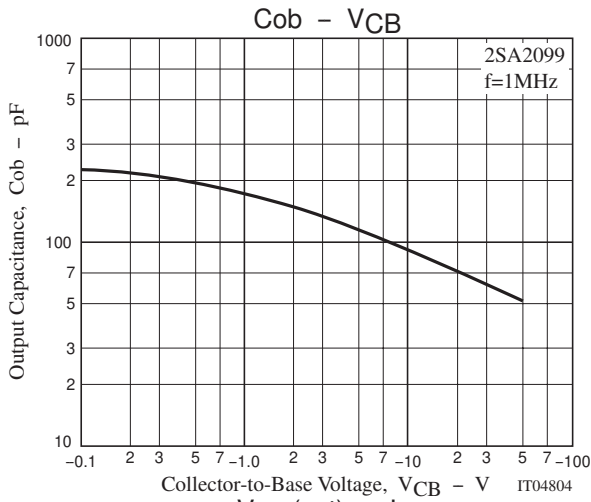


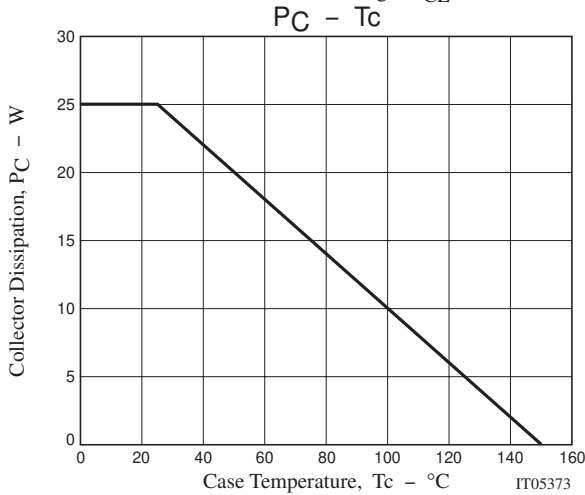
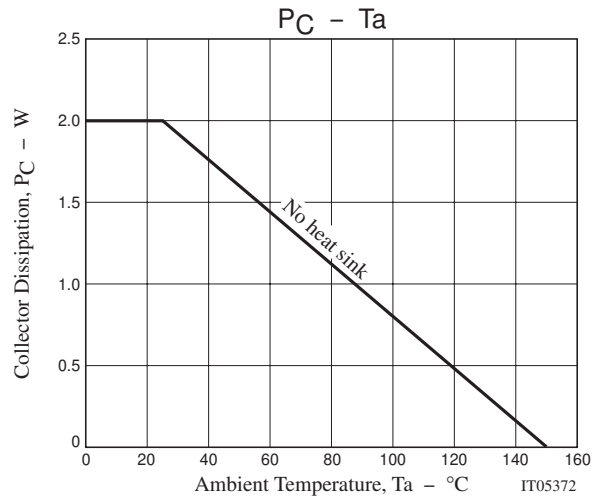
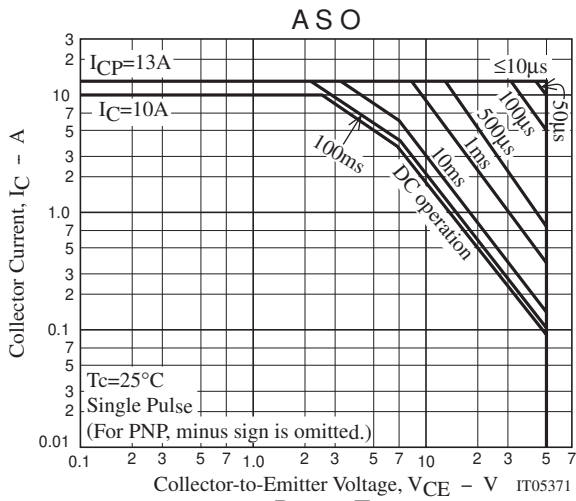
$I_C = 20I_{B1} = -20I_{B2} = 3A$
(For PNP, the polarity is reversed.)



2SA2099 / 2SC5888







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