

<b>SANYO</b>	No. 3720	<b>2SB1388/2SD2093</b>
		2SB1388 : PNP Epitaxial Planar Silicon Transistors 2SD2093 : NPN Triple Diffused Planar Silicon Transistors <b>Driver Applications</b>

**Applications**

- Motor drivers, printer hammer drivers, relay drivers, voltage regulator control.

**Features**

- High DC current gain.
- Large current capacity and large ASO.
- Low saturation voltage.
- Micaless package facilitating mounting.

( ) : 2SB1388

**Absolute Maximum Ratings at Ta = 25°C**

Collector-to-Base Voltage	V <sub>CBO</sub>	(-)	110	V
Collector-to-Emitter Voltage	V <sub>CEO</sub>	(-)	100	V
Emitter-to-Base Voltage	V <sub>EBO</sub>	(-)	6	V
Collector Current	I <sub>C</sub>	(-)	10	A
Peak Collector Current	i <sub>cp</sub>	(-)	15	A
Collector Dissipation	P <sub>C</sub>		3.0	W
			45	W
Junction Temperature	T <sub>j</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C

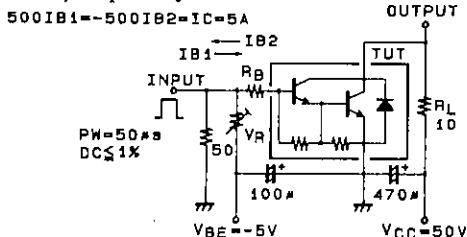
T<sub>c</sub> = 25°C

**Electrical Characteristics at Ta = 25°C**

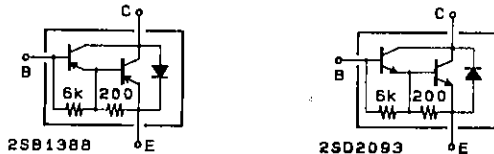
			min	typ	max	unit
Collector Cutoff Current	I <sub>CBO</sub>	V <sub>CB</sub> = (-)80V, I <sub>E</sub> = 0			(-)	0.1 mA
Emitter Cutoff Current	I <sub>EBO</sub>	V <sub>CE</sub> = (-)5V, I <sub>C</sub> = 0			(-)	3.0 mA
DC Current Gain	h <sub>FE</sub>	V <sub>CE</sub> = (-)3V, I <sub>C</sub> = (-)5A	1500	4000		
Gain-Bandwidth Product	f <sub>T</sub>	V <sub>CE</sub> = (-)5V, I <sub>C</sub> = (-)5A		20		MHz
C-E Saturation Voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> = (-)5A, I <sub>B</sub> = (-)10mA	(-)	1.0	(-)	1.5 V
B-E Saturation Voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> = (-)5A, I <sub>B</sub> = (-)10mA			(-)	2.0 V
C-B Breakdown Voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> = (-)5mA, I <sub>E</sub> = 0	(-)	110		V
C-E Breakdown Voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> = (-)50mA, R <sub>BE</sub> = ∞	(-)	100		V
Turn-ON Time	t <sub>on</sub>	See specified Test Circuit.	(0.7)	0.6		μs
Storage Time	t <sub>stg</sub>	"	(1.4)	4.8		μs
Fall Time	t <sub>f</sub>	"	(1.5)	1.6		μs

**Switching Time Test Circuit**

(For PNP, the polarity is reversed)



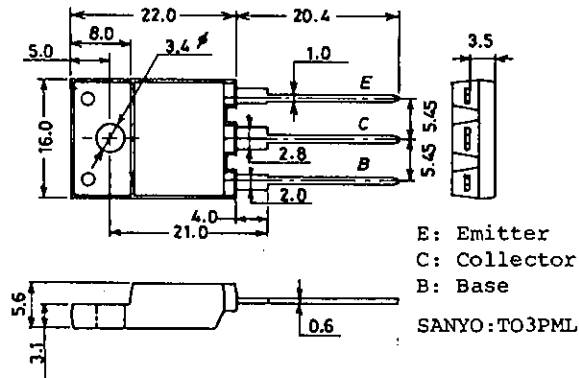
**Electrical Connection**



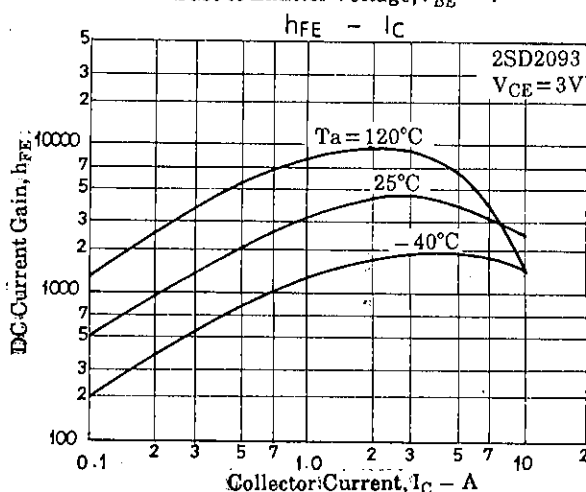
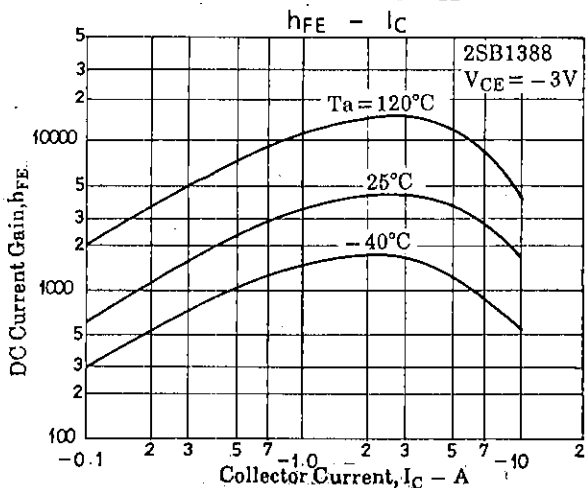
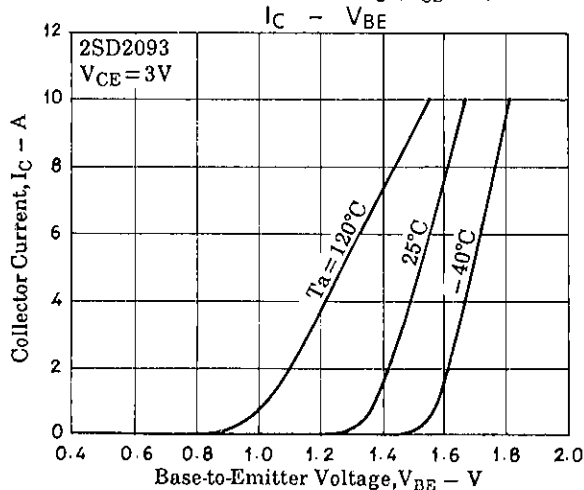
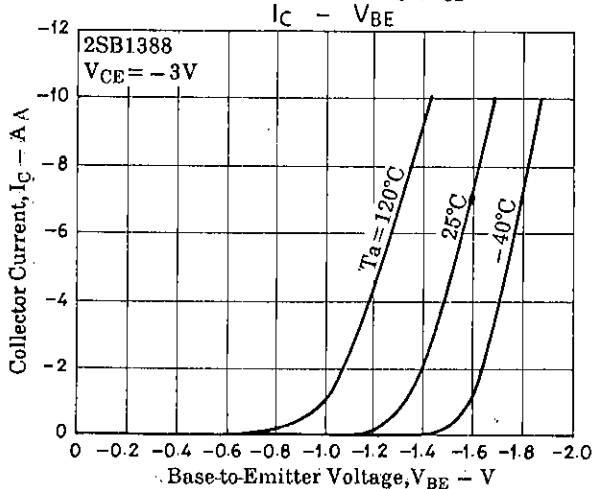
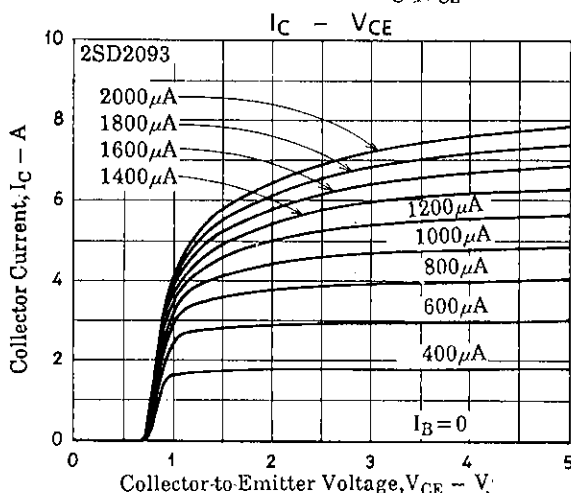
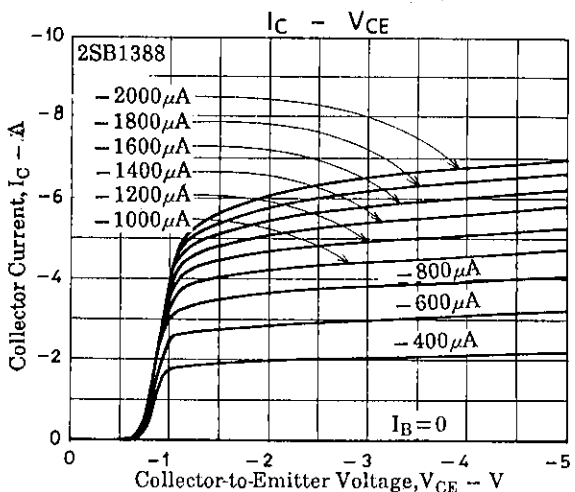
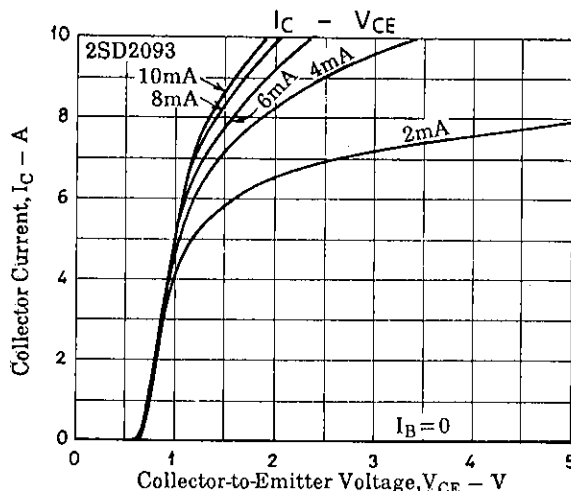
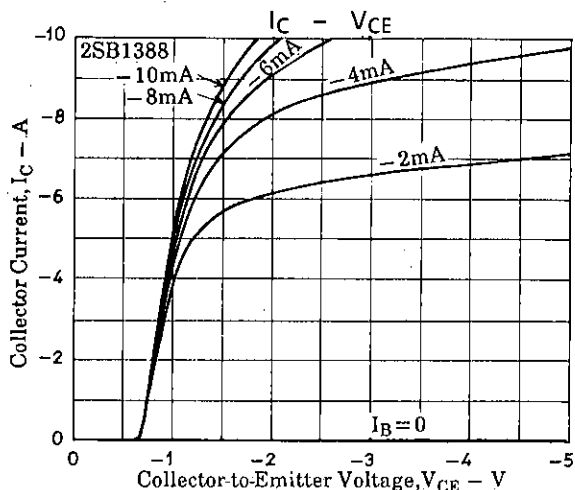
Unit (Resistance : Ω, Capacitance : F)

**Package Dimensions 2039A**

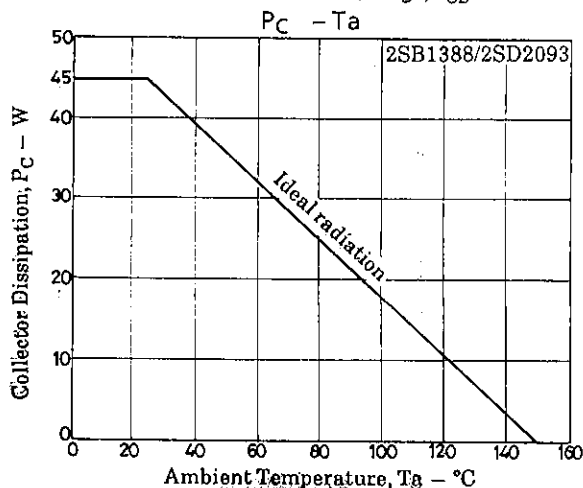
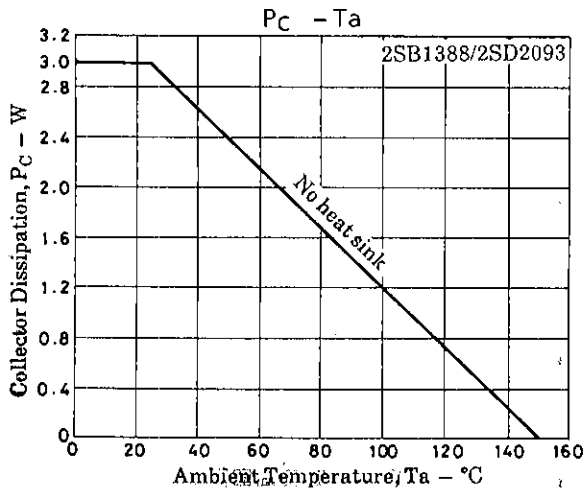
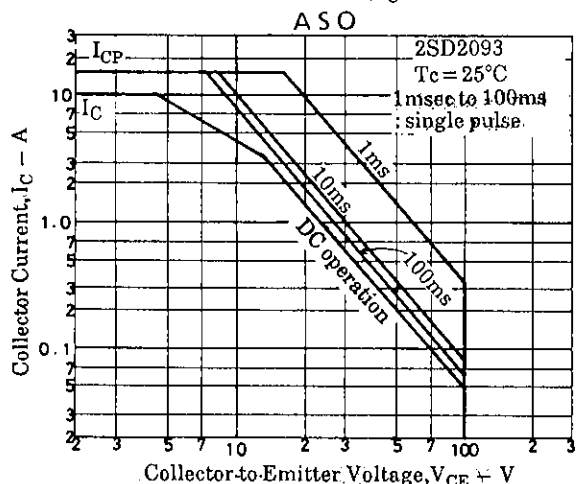
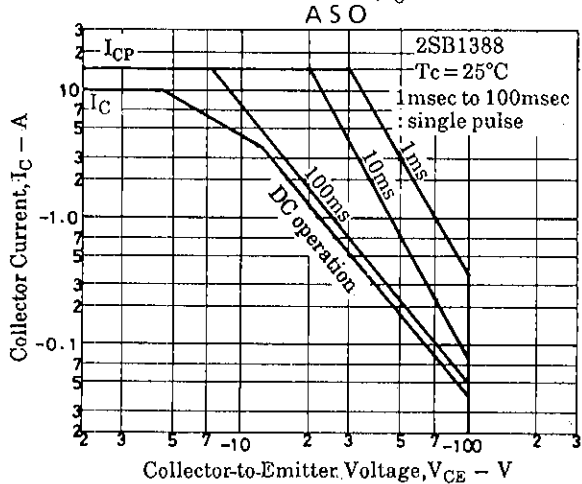
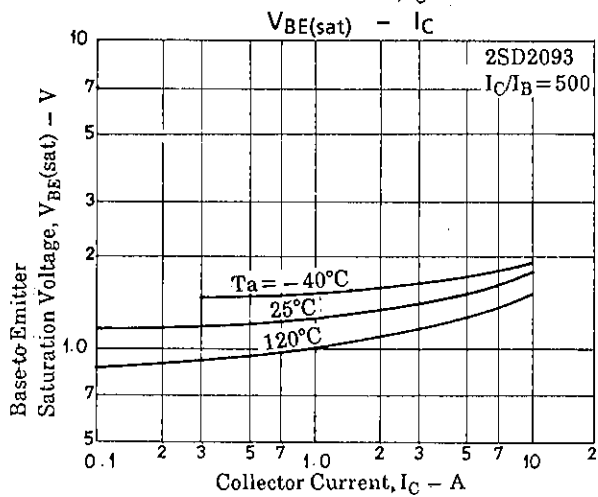
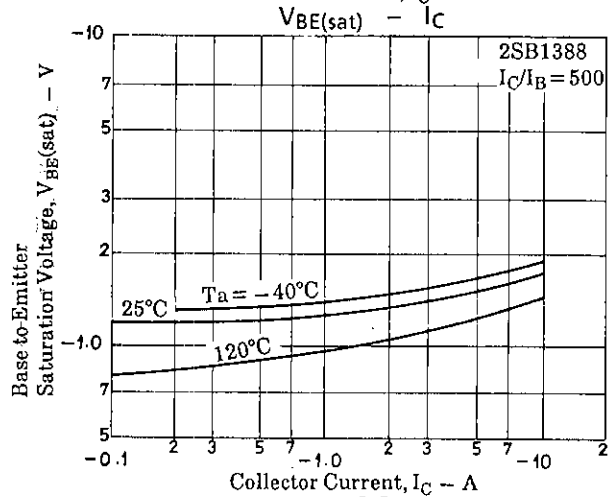
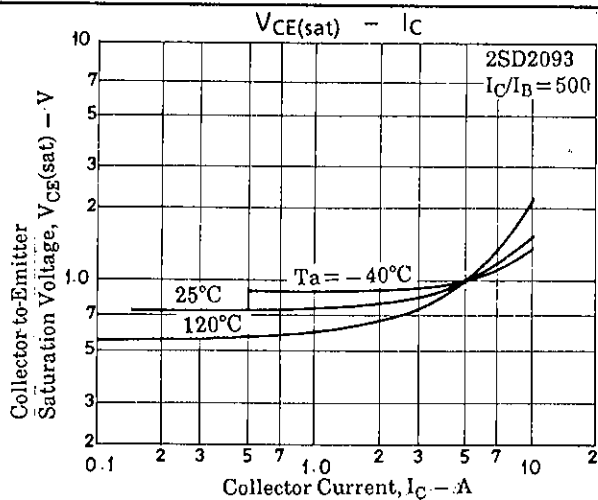
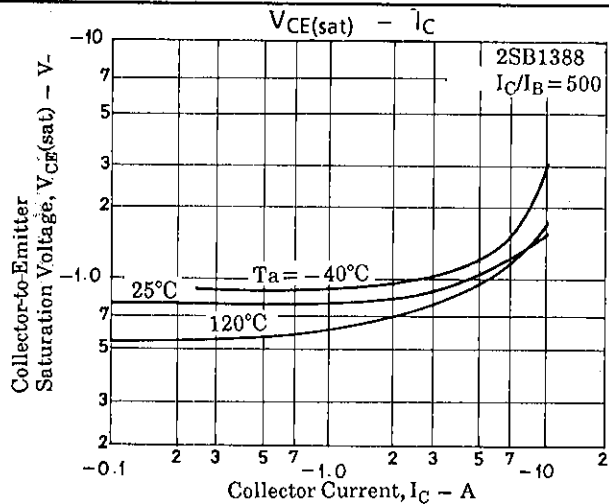
(unit : mm)



E: Emitter  
C: Collector  
B: Base  
SANYO:TO3PML



2SB1388/2SD2093



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