

# ECH8501

PNP/NPN Epitaxial Planar Silicon Transistors

## Gate Drive Applications

### Features

- Composite type, facilitating high-density mounting
- Low collector-to-emitter saturation voltage
- Halogen free compliance
- Mounting height 0.9mm
- NPN :  $V_{CE(sat)}=0.075V(\text{typ.})@I_C=2.5A$
- PNP :  $V_{CE(sat)}=-0.1V(\text{typ.})@I_C=-2.5A$

### Specifications ( ) : PNP

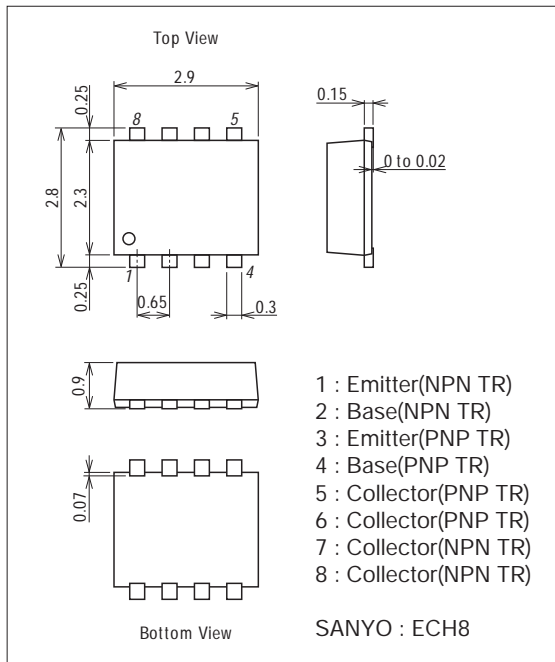
Absolute Maximum Ratings at  $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	$V_{CBO}$		(-30)40	V
Collector-to-Emitter Voltage	$V_{CEO}$		(-30)	V
Emitter-to-Base Voltage	$V_{EBO}$		(-)6	V
Collector Current	$I_C$		(-)5	A
Collector Current (Pulse)	$I_{CP}$	$PW \leq 1\mu\text{s}$ , duty cycle $\leq 1\%$	(-)30	A
Base Current	$I_B$		(-)600	mA
Collector Dissipation	$P_C$	When mounted on ceramic substrate (900mm <sup>2</sup> ×0.8mm) 1unit	1.3	W
Total Dissipation	$P_T$	When mounted on ceramic substrate (900mm <sup>2</sup> ×0.8mm)	1.6	W
Junction Temperature	$T_J$		150	°C
Storage Temperature	$T_{stg}$		-55 to +150	°C

### Package Dimensions

unit : mm (typ)

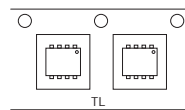
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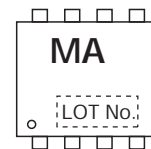
### Product & Package Information

- Package : ECH8
- JEITA, JEDEC : -
- Minimum Packing Quantity : 3,000 pcs./reel

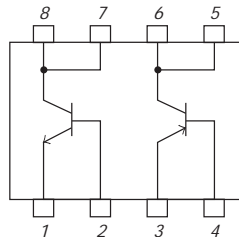
### Packing Type : TL



### Marking



### Electrical Connection

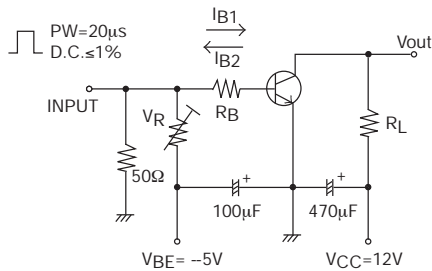


Electrical Characteristics at Ta=25°C

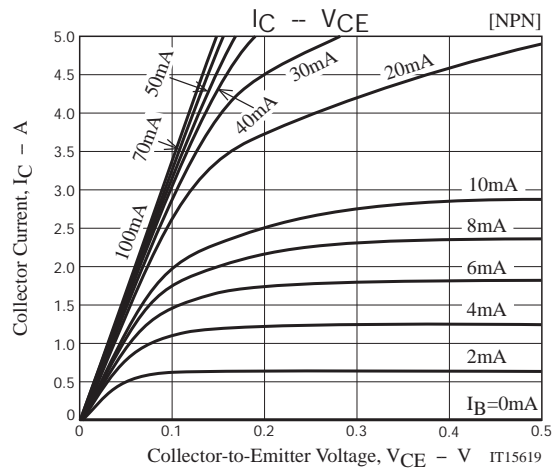
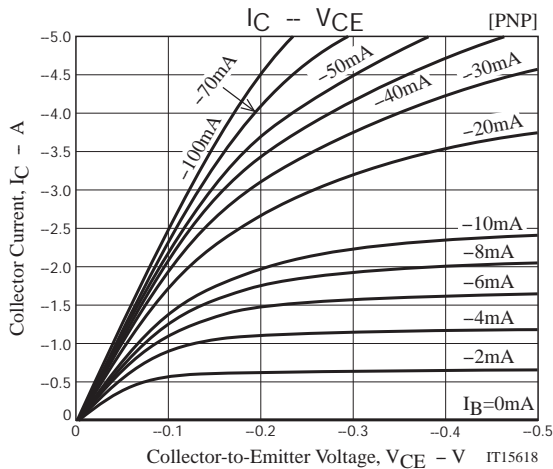
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=(-)30V, I_E=0A$			(-)0.1	$\mu A$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=(-)4V, I_C=0A$			(-)0.1	$\mu A$
DC Current Gain	$h_{FE}$	$V_{CE}=(-)2V, I_C=(-)500mA$	200		560	
Gain-Bandwidth Product	$f_T$	$V_{CE}=(-)10V, I_C=(-)500mA$		(260)280		MHz
Output Capacitance	$C_{ob}$	$V_{CB}=(-)10V, f=1MHz$		(49)32		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)2.5A, I_B=(-)125mA$		(-100)75	(-170)110	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)2.5A, I_B=(-)125mA$		(-)0.85	(-)1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\mu A, I_E=0A$	(-30)40			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1mA, R_{BE}=\infty$	(-)30			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)10\mu A, I_C=0A$	(-)6			V
Turn-On Time	$t_{on}$	See specified Test Circuit.		(37)30		ns
Storage Time	$t_{stg}$	See specified Test Circuit.		(147)220		ns
Fall Time	$t_f$	See specified Test Circuit.		(14)12		ns

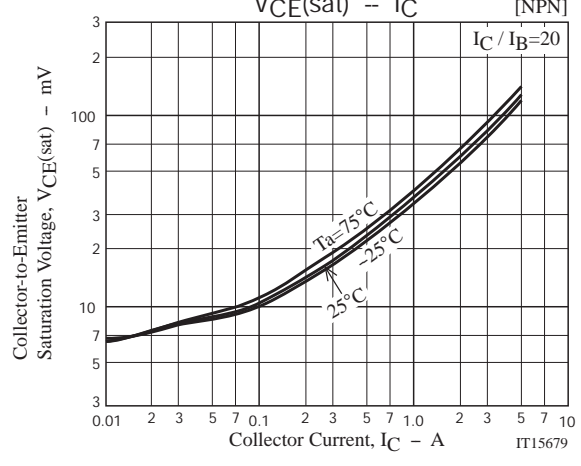
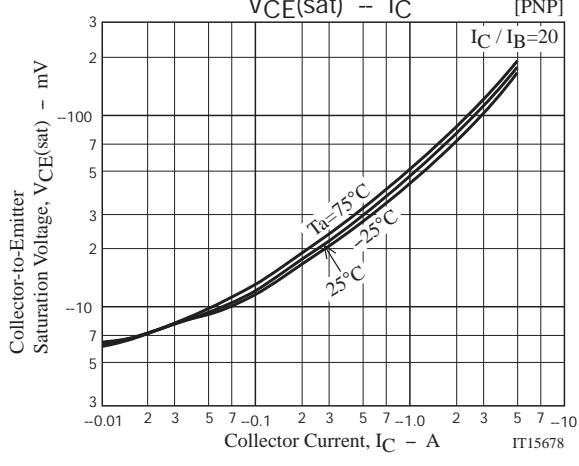
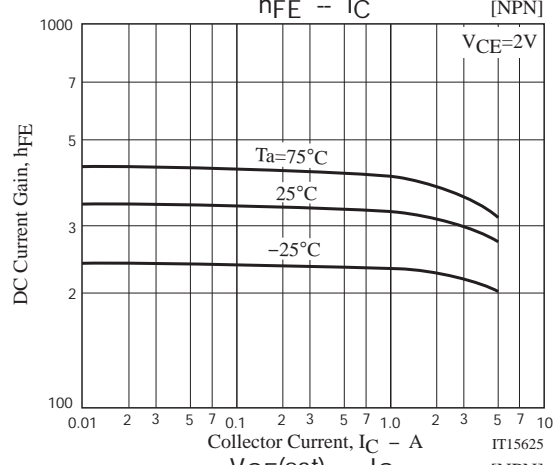
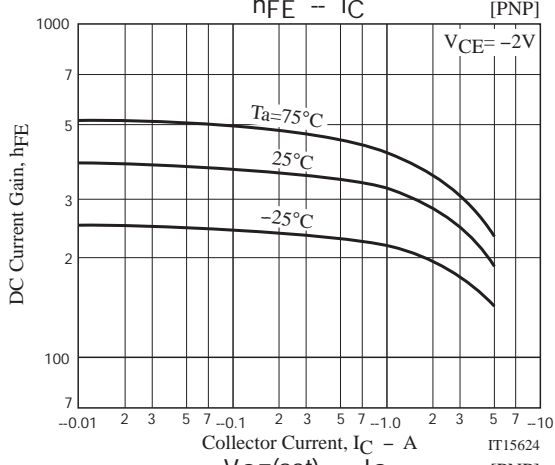
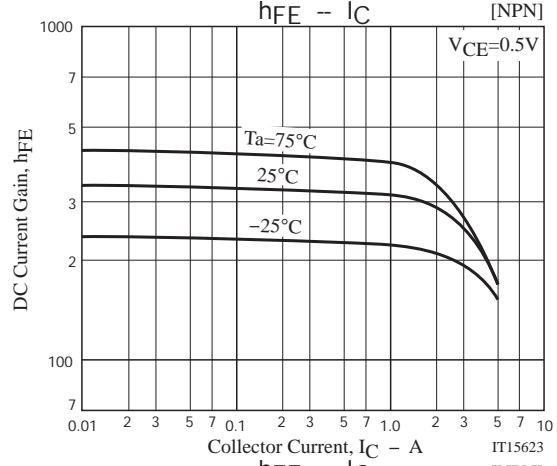
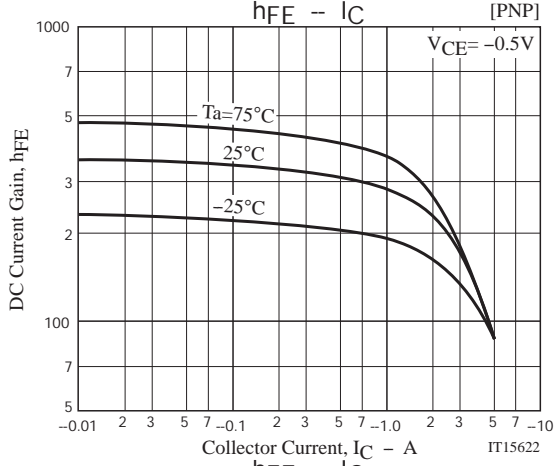
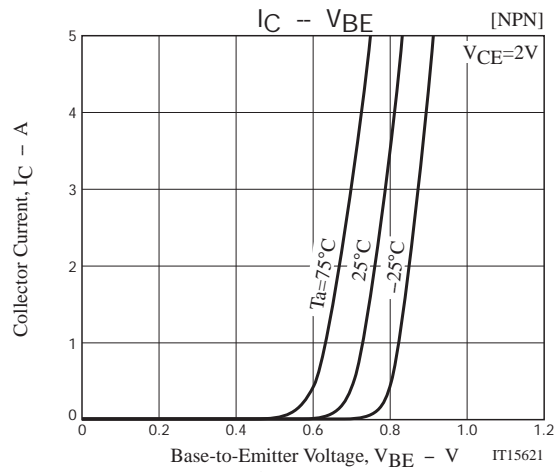
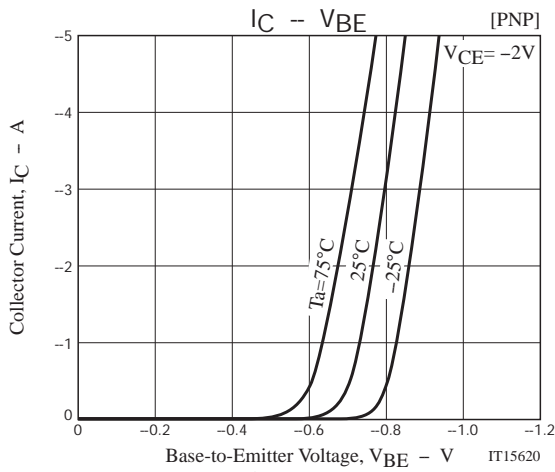
Note : The specifications shown above are for each individual transistor.

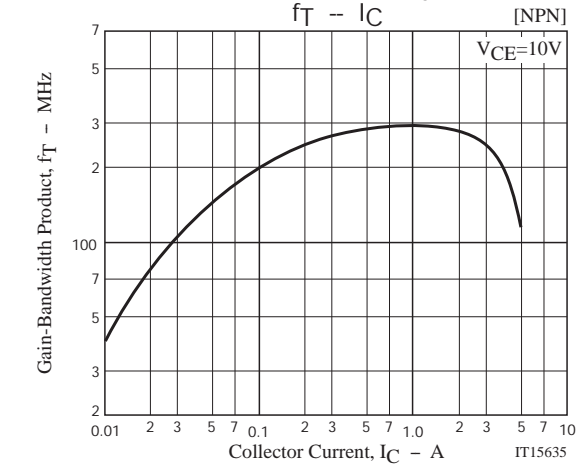
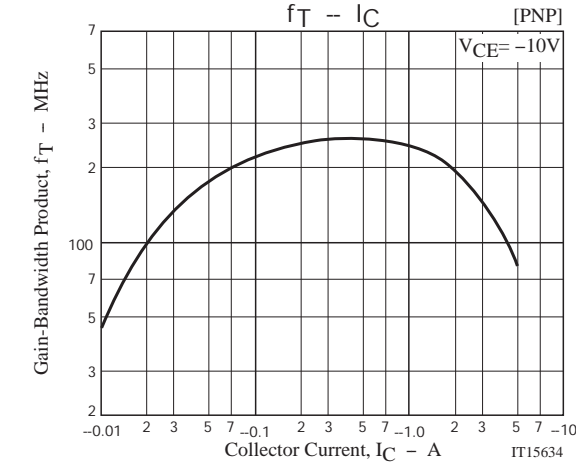
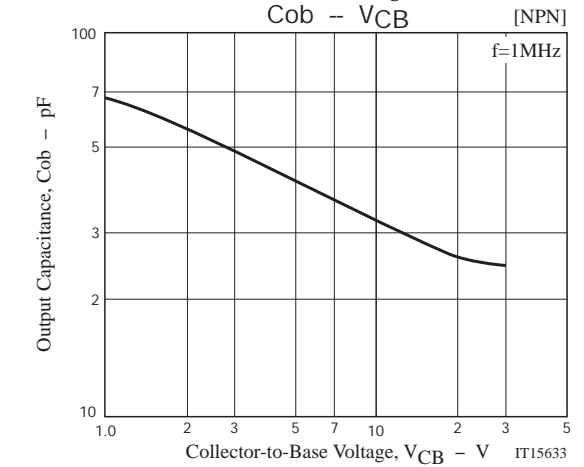
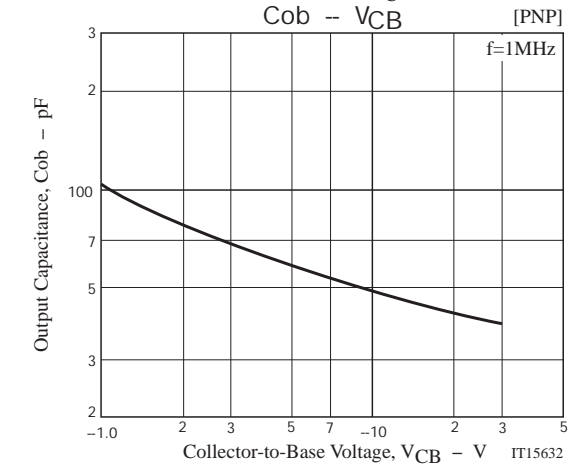
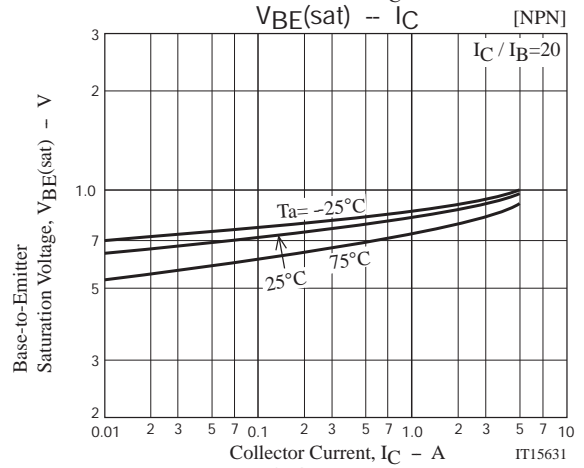
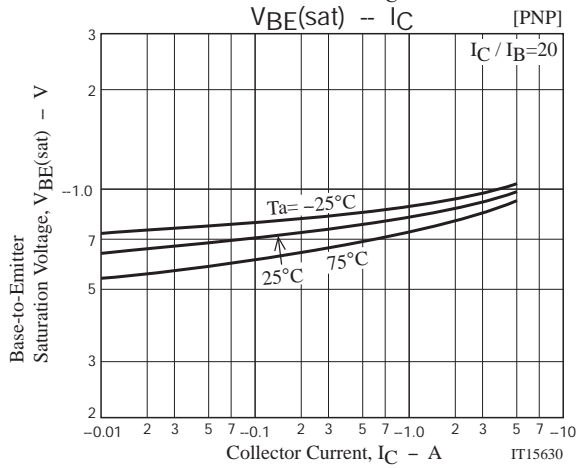
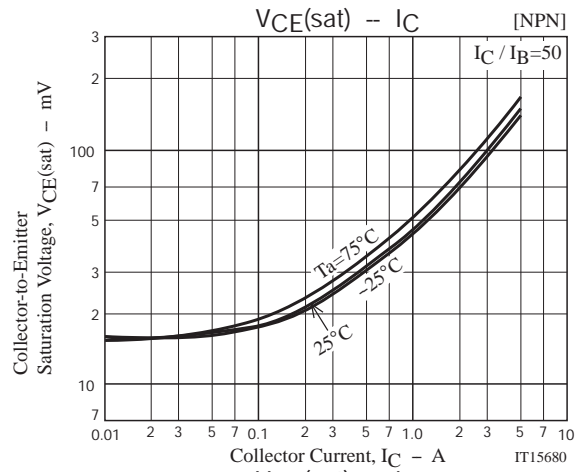
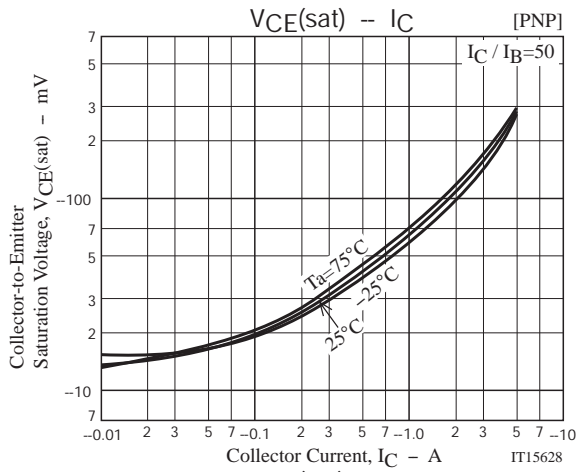
Switching Time Test Circuit

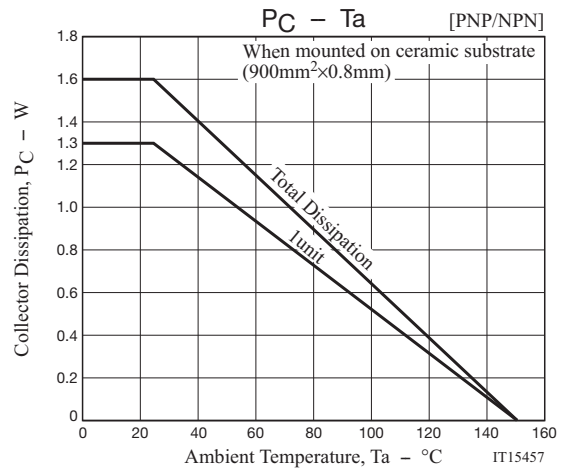
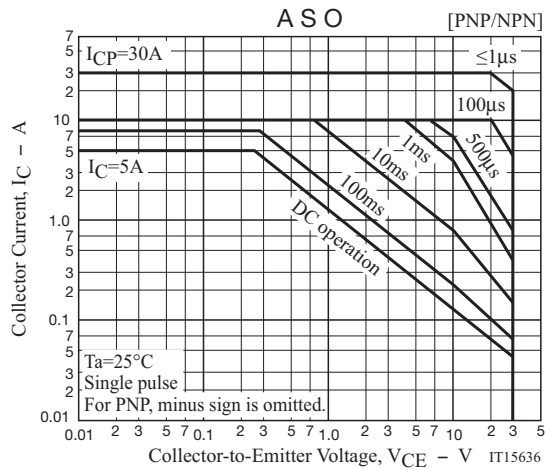


$I_C = 20I_{B1} = -20I_{B2} = 2.5A$   
 (For PNP, the polarity is reversed.)









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