



# CPH3249

NPN Triple Diffused Planar Silicon Transistor

## Switching Regulator Applications

### Features

- High breakdown voltage.
- Ultrahigh-speed switching.
- Wide ASO.
- Adoption of MBIT process.

### Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	$V_{CBO}$		700	V
Collector-to-Emitter Voltage	$V_{CEO}$		350	V
Emitter-to-Base Voltage	$V_{EBO}$		8	V
Collector Current	$I_C$		1	A
Collector Current (Pulse)	$I_{CP}$	$PW \leq 300\mu\text{s}$ , duty cycle $\leq 10\%$	2	A
Base Current	$I_B$		0.5	A
Collector Dissipation	$P_C$	Mounted on a ceramic board (600mm $\times$ 0.8mm)	0.9	W
Junction Temperature	$T_J$		150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ\text{C}$

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

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=350\text{V}$ , $I_E=0\text{A}$			10	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=5\text{V}$ , $I_C=0\text{A}$			10	$\mu\text{A}$
DC Current Gain	$h_{FE1}$	$V_{CE}=5\text{V}$ , $I_C=0.1\text{A}$	100		200	
	$h_{FE2}$	$V_{CE}=5\text{V}$ , $I_C=0.5\text{A}$	10			
	$h_{FE3}$	$V_{CE}=5\text{V}$ , $I_C=1\text{mA}$	60			
Gain-Bandwidth Product	$f_T$	$V_{CE}=10\text{V}$ , $I_C=0.1\text{A}$		20		MHz
Output Capacitance	$C_{ob}$	$V_{CB}=10\text{V}$ , $f=1\text{MHz}$		8		pF

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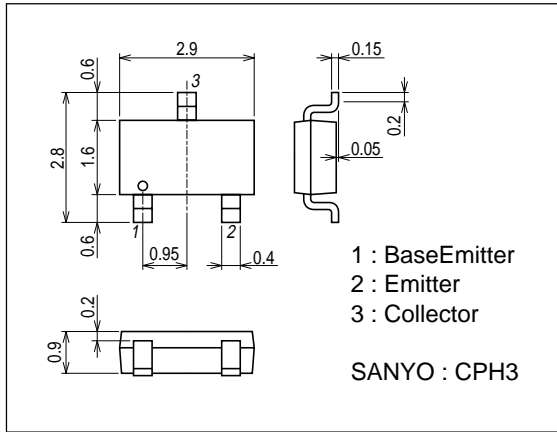
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=0.5A, I_B=0.1A$			0.8	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=0.5A, I_B=0.1A$			1.5	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=1mA, I_E=0A$	700			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=5mA, R_{BE}=\infty$	350			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=1mA, I_C=0A$	8			V
Turn-ON Time	$t_{on}$	$I_C=0.5A, I_{B1}=0.05A, I_{B2}=-0.5A, R_L=400\Omega, V_{CC}=200V$			1.0	$\mu s$
Storage Time	$t_{stg}$	$I_C=0.5A, I_{B1}=0.05A, I_{B2}=-0.5A, R_L=400\Omega, V_{CC}=200V$			2.5	$\mu s$
Fall Time	$t_f$	$I_C=0.5A, I_{B1}=0.05A, I_{B2}=-0.5A, R_L=400\Omega, V_{CC}=200V$			0.3	$\mu s$

Note : Since the above stated product is a high-voltage device, so please pay attention to its reliability when in use.

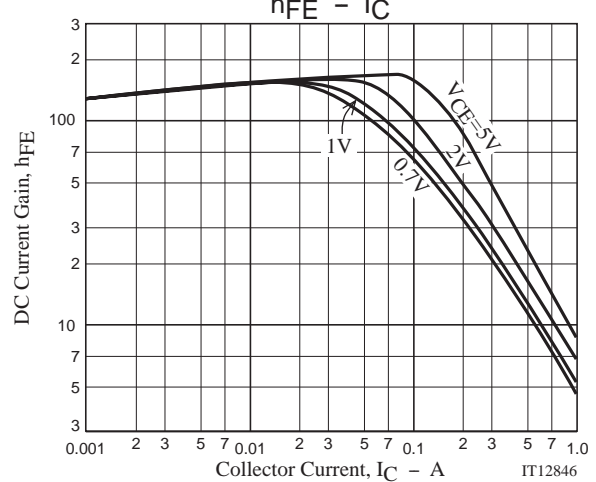
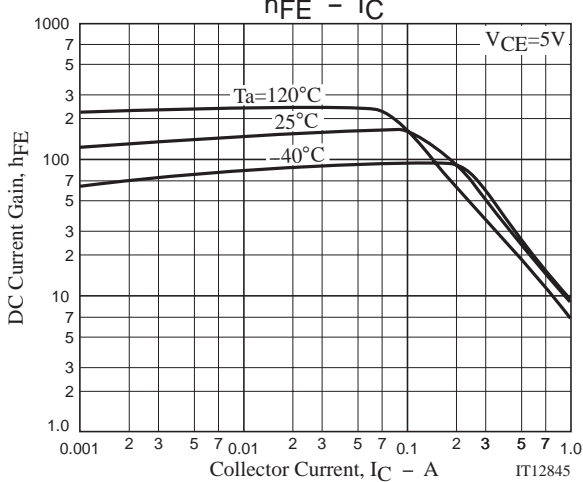
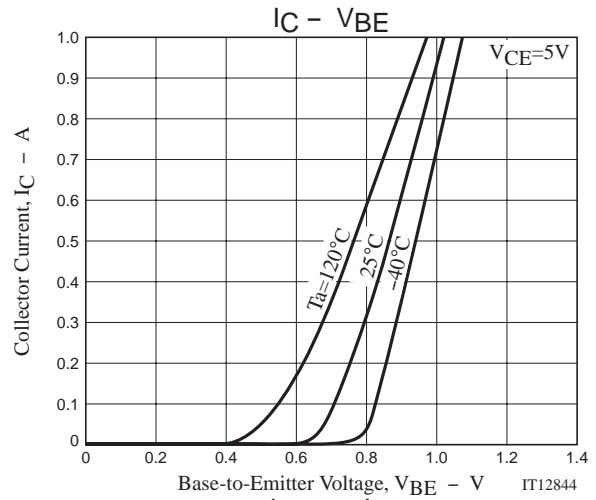
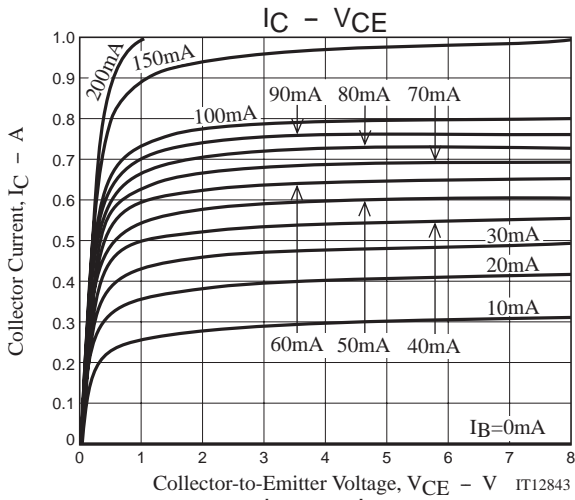
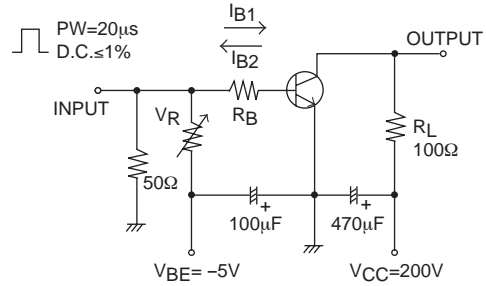
## Package Dimensions

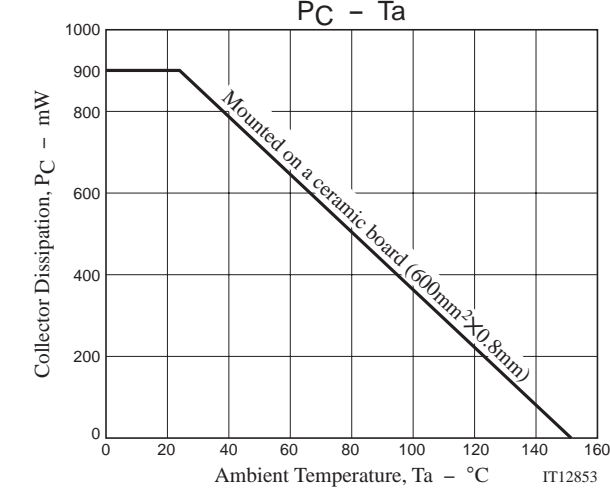
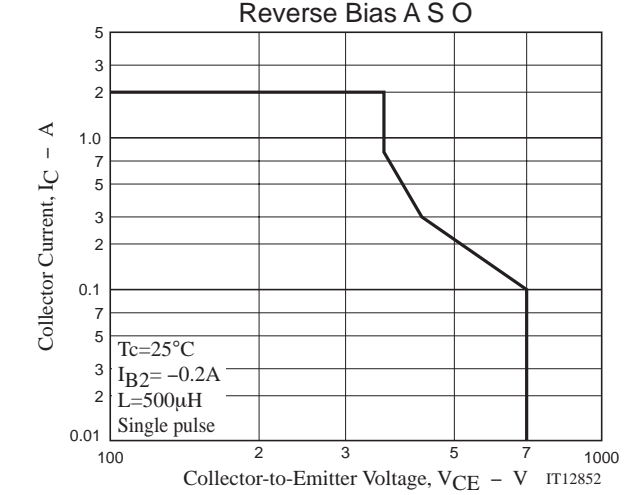
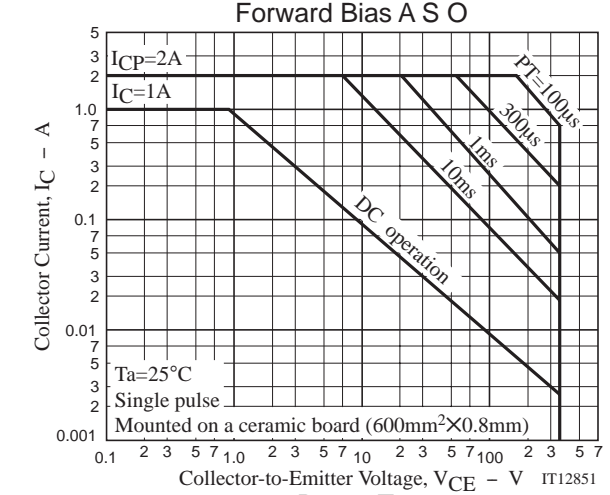
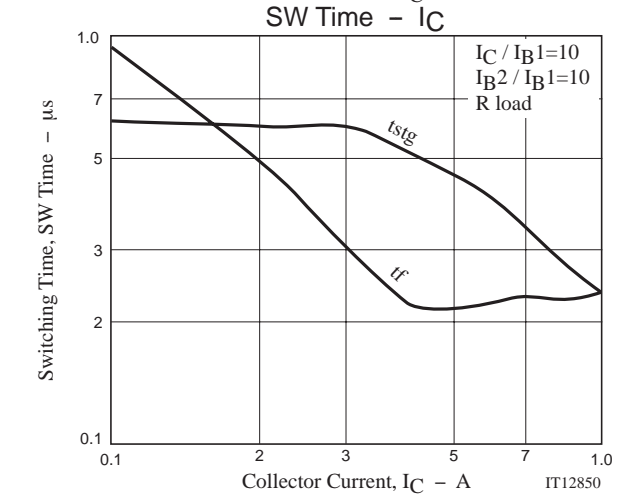
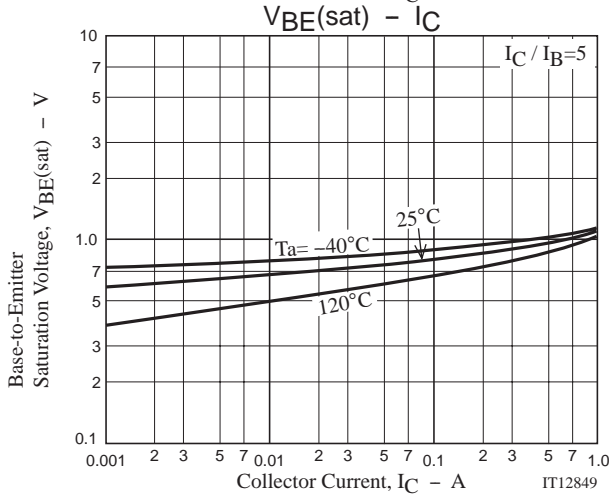
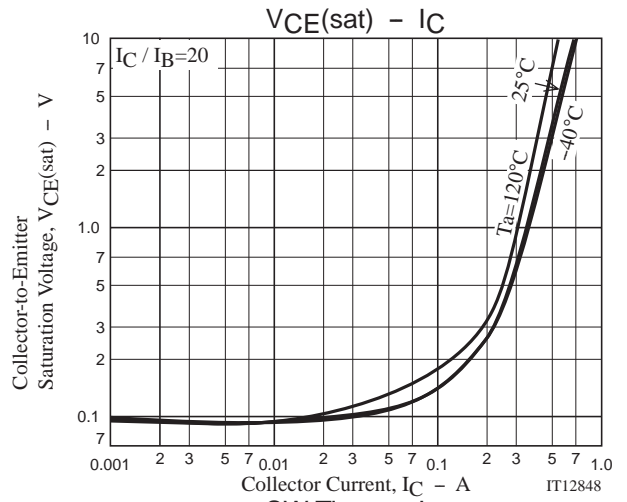
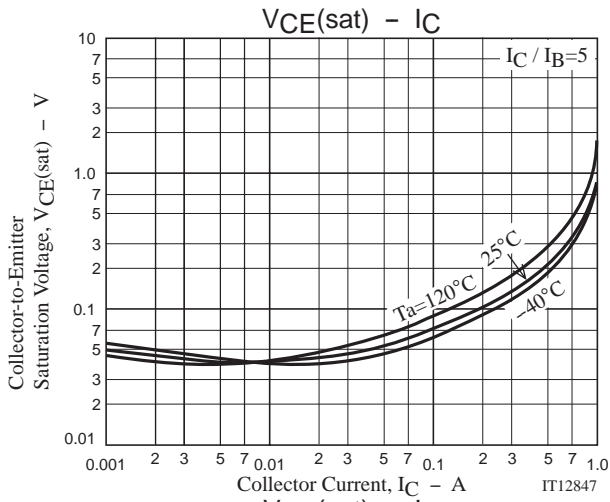
unit : mm (typ)

7015A-005



## Switching Time Test Circuit





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