

2SC4428 — NPN Triple Diffused Planar Silicon Transistor

800V / 6A Switching Regulator Applications

Features

- High breakdown voltage, high reliability.
- High-speed switching (t_r : 0.1 μ s typ).
- Wide ASO.
- Adoption of MBIT process.
- Attachment workability is good by Mica-less package.

Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CB0}		1100	V
Collector-to-Emitter Voltage	V_{CEO}		800	V
Emitter-to-Base Voltage	V_{EBO}		7	V
Collector Current	I_C		6	A
Collector Current (Pulse)	I_{CP}	$PW \leq 300\mu\text{s}$, duty cycle $\leq 10\%$	20	A
Base Current	I_B		3	A
Collector Dissipation	P_C		3	W
		$T_c=25^\circ\text{C}$	55	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_{CB0}	$V_{CB}=800\text{V}$, $I_E=0\text{A}$			10	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=5\text{V}$, $I_C=0\text{A}$			10	μA
DC Current Gain	h_{FE1}	$V_{CE}=5\text{V}$, $I_C=0.4\text{A}$	10*		40*	
	h_{FE2}	$V_{CE}=5\text{V}$, $I_C=2\text{A}$	8			

Continued on next page.

* : The h_{FE1} of the 2SC4428 is classified as follows. When specifying the h_{FE1} rank, specify two ranks or more in principle.

Rank	K	L	M
h_{FE}	10 to 20	15 to 30	20 to 40

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2SC4428

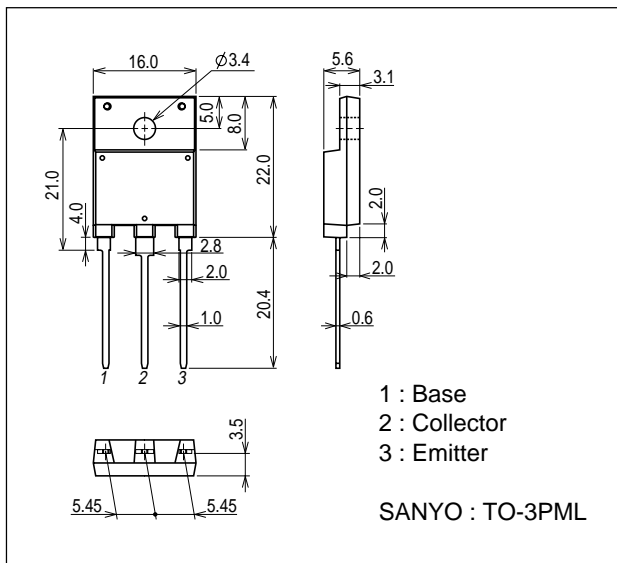
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Gain-Bandwidth Product	f_T	$V_{CE}=10V, I_C=0.4A$		15		MHz
Output Capacitance	C_{ob}	$V_{CB}=10V, f=1MHz$		120		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=3A, I_B=0.6A$			2.0	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=3A, I_B=0.6A$			1.5	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=1mA, I_E=0A$	1100			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=5mA, R_{BE}=\infty$	800			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=1mA, I_C=0A$	7			V
Collector-to-Emitter Sustain Voltage	$V_{CEX(sus)}$	$I_C=3A, I_{B1}=0.6A, I_{B2}=-0.6A, L=1mH, \text{Clamped}$	800			V
Turn-ON Time	t_{on}	$V_{CC}=400V, I_{B1}=0.8A, I_{B2}=-1.6A, I_C=4A, R_L=100\Omega$			0.5	μs
Storage Time	t_{stg}	$V_{CC}=400V, I_{B1}=0.8A, I_{B2}=-1.6A, I_C=4A, R_L=100\Omega$			3.0	μs
Fall Time	t_f	$V_{CC}=400V, I_{B1}=0.8A, I_{B2}=-1.6A, I_C=4A, R_L=100\Omega$			0.3	μs

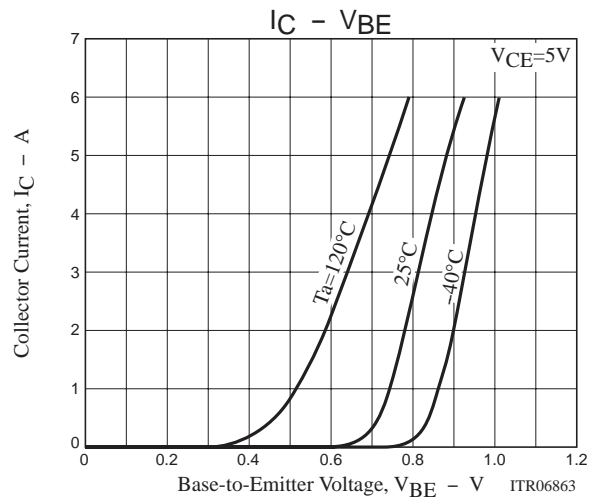
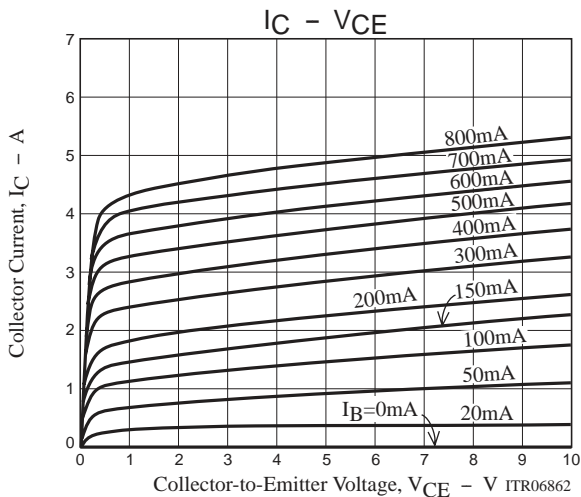
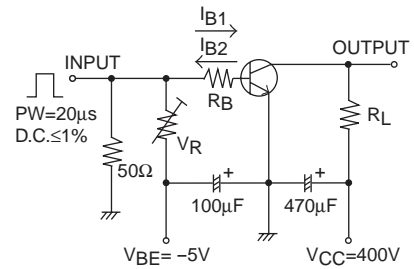
Package Dimensions

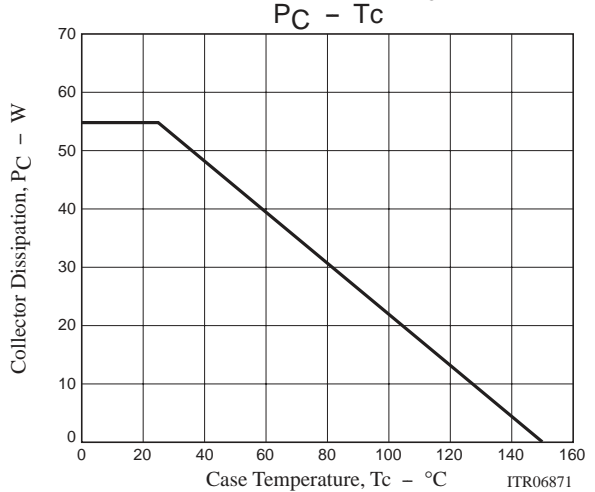
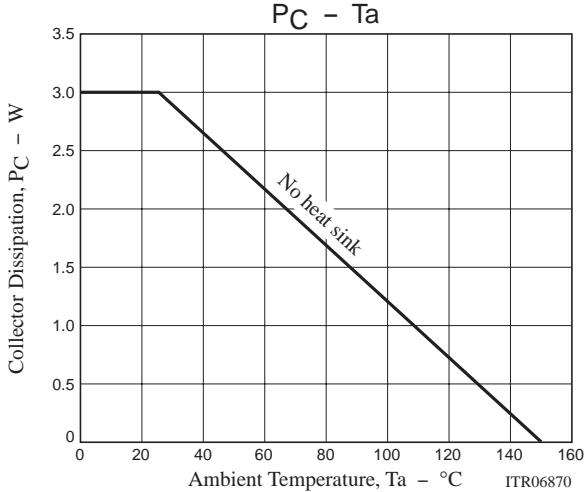
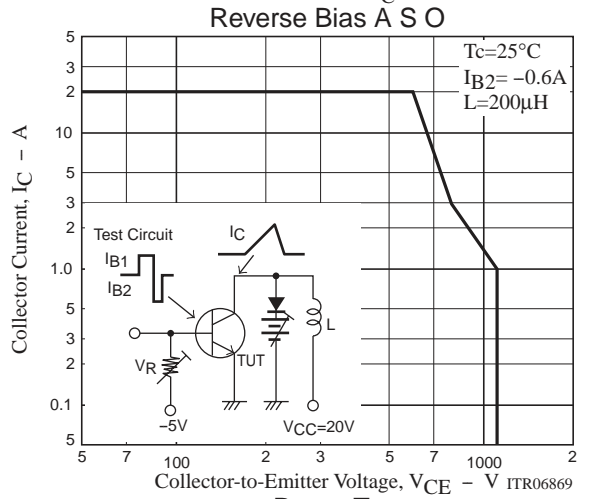
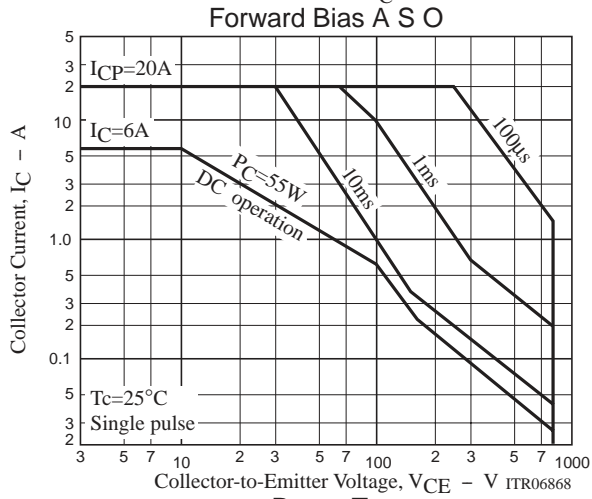
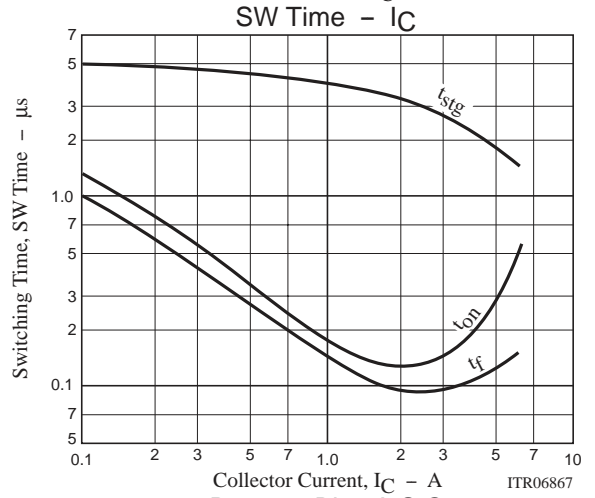
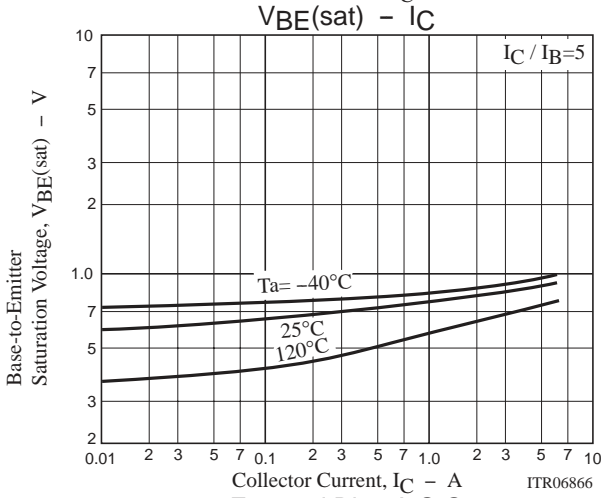
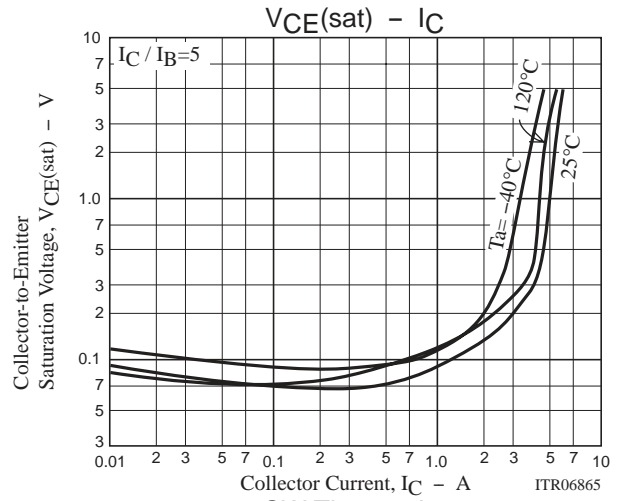
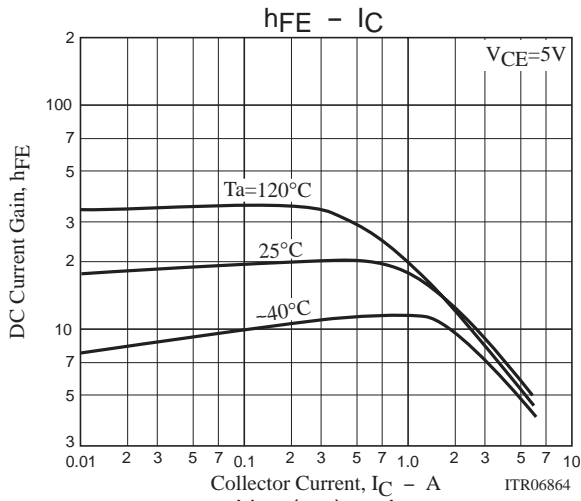
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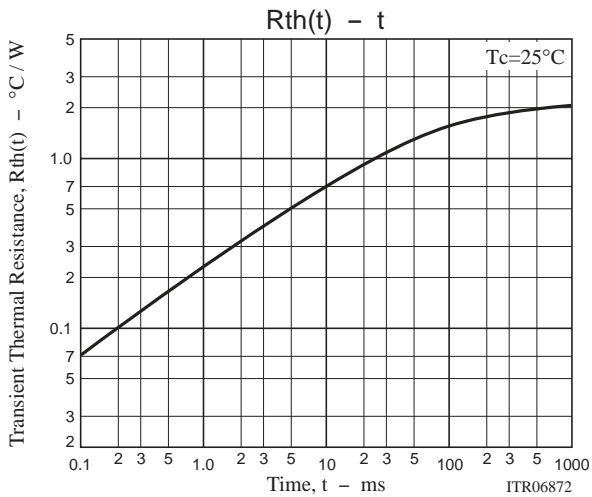
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Switching Time Test Circuit







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