



2SC4458

— NPN Triple Diffused Planar Silicon Transistors

Switching Regulator Applications

Features

- High breakdown voltage, high reliability.
- High-speed switching.
- 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}		800	V
Collector-to-Emitter Voltage	V_{CEO}		500	V
Emitter-to-Base Voltage	V_{EBO}		7	V
Collector Current	I_C		7	A
Collector Current (Pulse)	I_{CP}	$PW \leq 300\mu\text{s}$, duty cycle $\leq 10\%$	14	A
Base Current	I_B		3	A
Collector Dissipation	P_C		3	W
		$T_c=25^\circ\text{C}$	45	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}	$V_{CB}=500\text{V}$, $I_E=0$			10	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=5\text{V}$, $I_C=0$			10	μA
DC Current Gain	h_{FE1}	$V_{CE}=5\text{V}$, $I_C=0.6\text{A}$	15*		50*	
	h_{FE2}	$V_{CE}=5\text{V}$, $I_C=3\text{A}$	8			
Gain-Bandwidth Product	f_T	$V_{CE}=10\text{V}$, $I_C=0.6\text{A}$		18		MHz
Output Capacitance	C_{ob}	$V_{CB}=10\text{V}$, $f=1\text{MHz}$		80		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=3\text{A}$, $I_B=0.6\text{A}$			1	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=3\text{A}$, $I_B=0.6\text{A}$			1.5	V

* : For the h_{FE1} of the 2SC4458, specify two ranks or more in principle.

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Rank	L	M	N
h_{FE}	15 to 30	20 to 40	30 to 50

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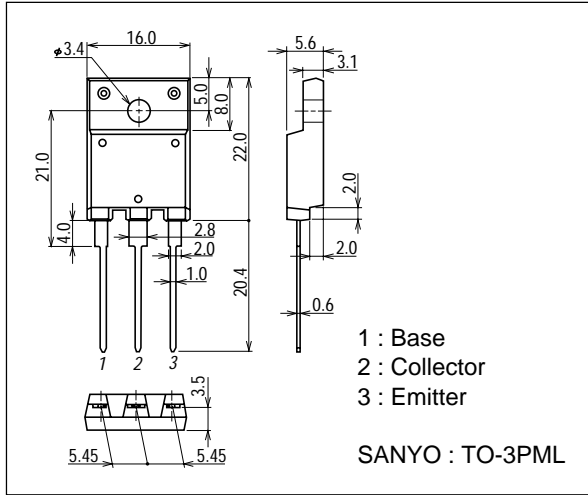
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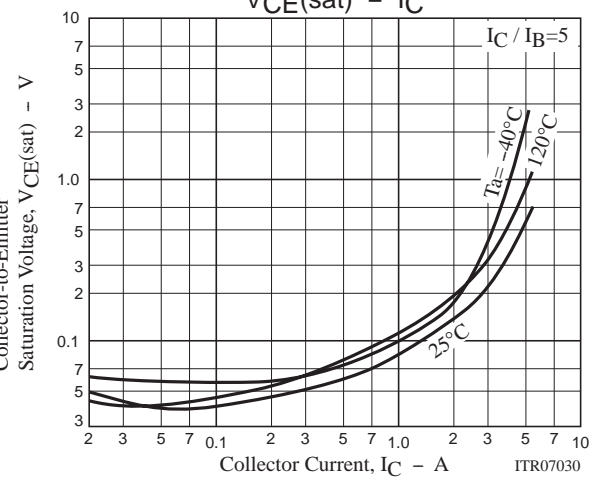
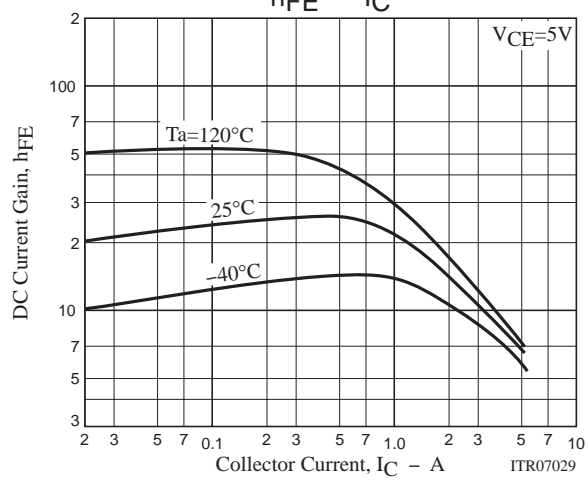
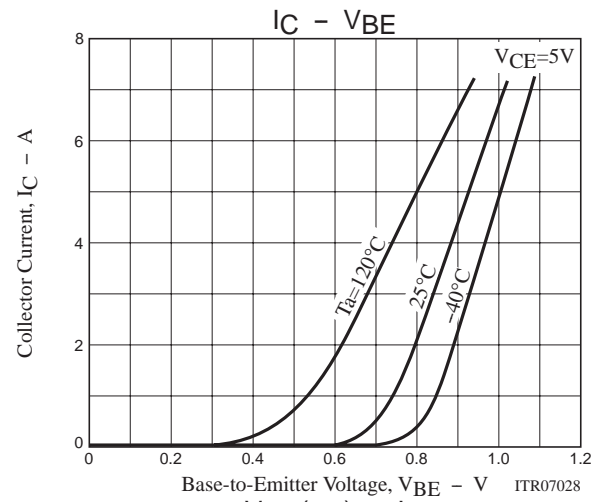
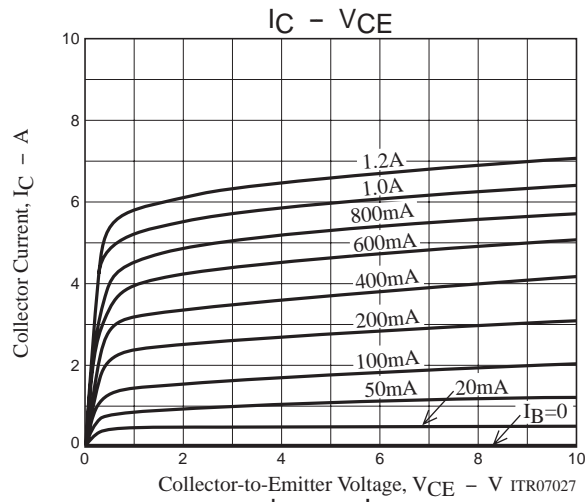
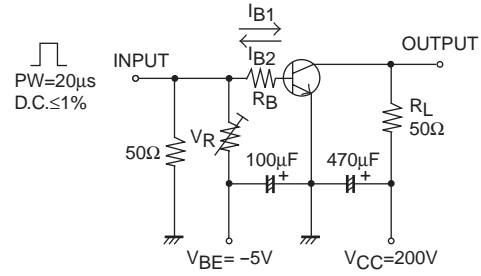
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=1mA, I_E=0$	800			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=5mA, R_{BE}=\infty$	500			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=1mA, I_C=0$	7			V
Collector-to-Emitter Sustain Voltage	$V_{CEX(sus)}$	$I_C=2.5A, I_{B1}=I_{B2}=1A, L=1mH, \text{Clamped}$	500			V
Turn-ON Time	t_{on}	$V_{CC}=200V, 5I_{B1}=-2.5I_{B2}=I_C=4A, R_L=50\Omega$			0.5	μs
Storage Time	t_{stg}	$V_{CC}=200V, 5I_{B1}=-2.5I_{B2}=I_C=4A, R_L=50\Omega$			3.0	μs
Fall Time	t_f	$V_{CC}=200V, 5I_{B1}=-2.5I_{B2}=I_C=4A, R_L=50\Omega$			0.3	μs

Package Dimensions

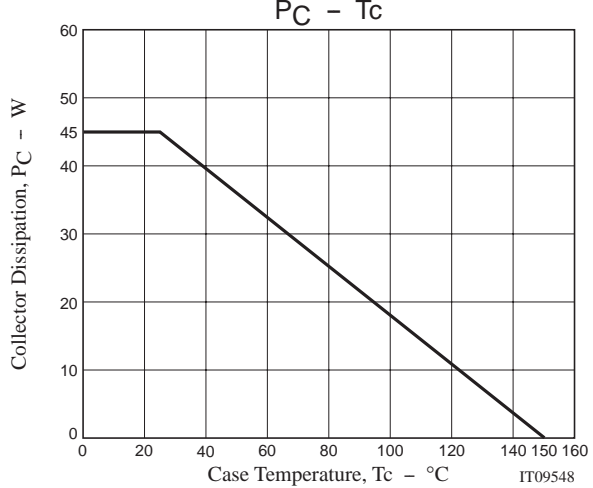
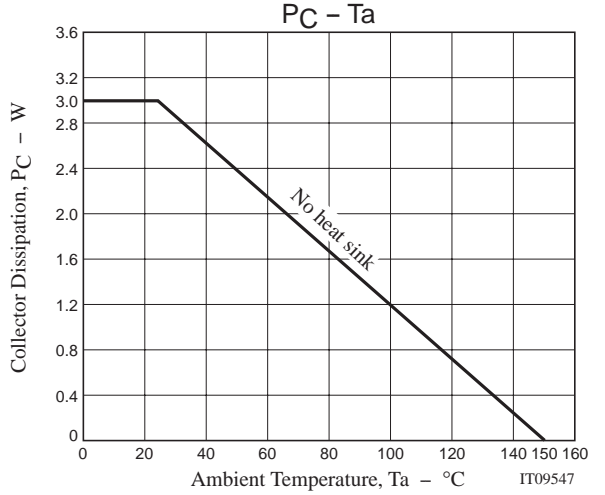
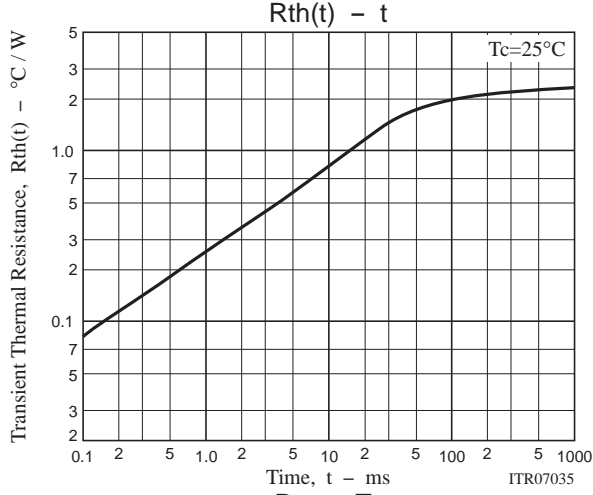
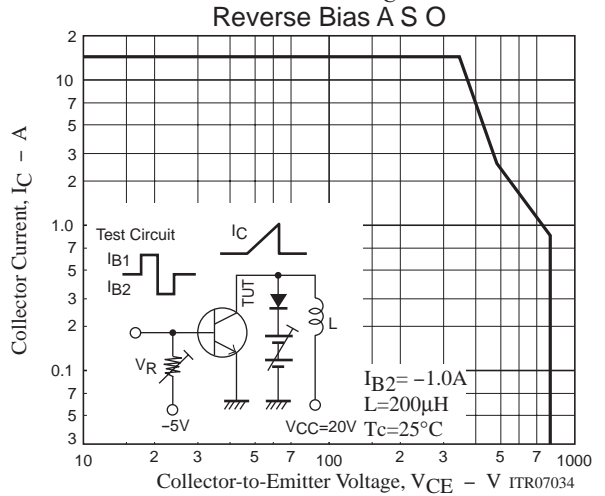
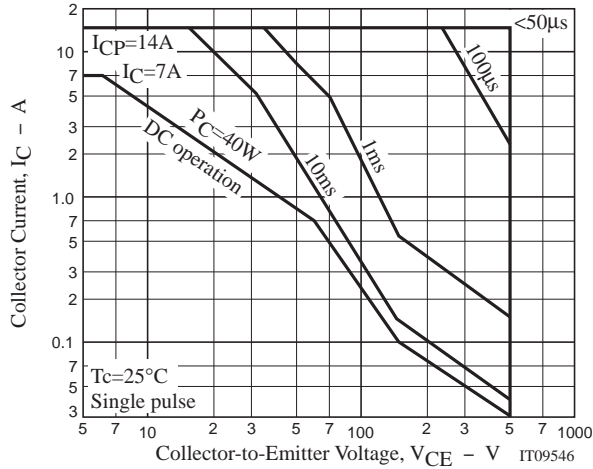
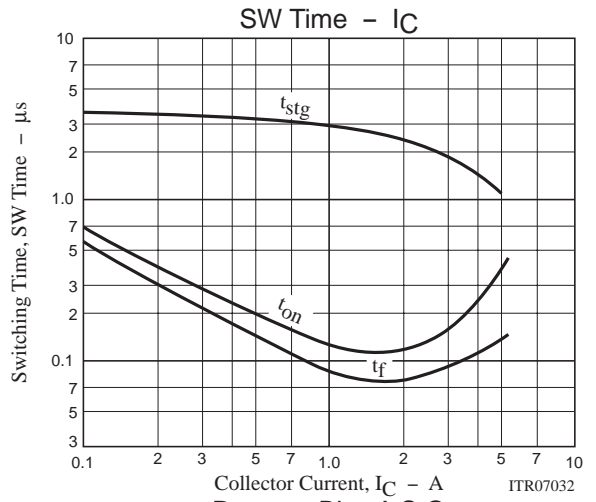
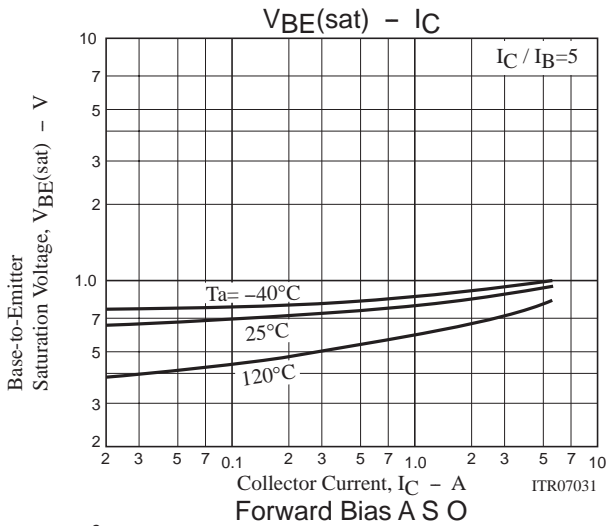
unit : mm
2039D



Switching Time Test Circuit



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