



SANYO Semiconductors

DATA SHEET

2SA1471 / 2SC3748 — PNP / NPN Epitaxial Planar Silicon Transistors

60V / 10A High-Speed Switching Applications

Applications

- Various inductance lamp drivers for electrical equipment.
- Inverters, converters (flash, fluorescent lamp lighting circuit).
- Power amp (high power car stereo, motor controller).
- High-speed switching (switching regulator, driver).

Features

- Low saturation voltage.
- Excellent current dependence of h_{FE} .
- Short switching time.
- Micaless package facilitating mounting.

Specifications () : 2SA1471

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

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CB0}		(-)80	V
Collector-to-Emitter Voltage	V_{CE0}		(-)60	V
Emitter-to-Base Voltage	V_{EB0}		(-)5	V
Collector Current	I_C		(-)10	A
Collector Current (Pulse)	I_{CP}		(-)12	A
Collector Dissipation	PC		2	W
		$T_c=25^\circ\text{C}$	30	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}	$V_{CB}=-40\text{V}, I_E=0\text{A}$			(-)0.1	mA
Emitter Cutoff Current	I_{EB0}	$V_{EB}=-4\text{V}, I_C=0\text{A}$			(-)0.1	mA
DC Current Gain	h_{FE}	$V_{CE}=-2\text{V}, I_C=(-)1\text{A}$	70*		280*	

* : The 2SA1471/2SC3748 are classified by 1A h_{FE} as follows :

Continued on next page.

Rank	Q	R	S
h_{FE}	70 to 140	100 to 200	140 to 280

■ Any and all SANYO Semiconductor products described or contained herein do not have specifications that can handle applications that require extremely high levels of reliability, such as life-support systems, aircraft's control systems, or other applications whose failure can be reasonably expected to result in serious physical and/or material damage. Consult with your SANYO Semiconductor representative nearest you before using any SANYO Semiconductor products described or contained herein in such applications.

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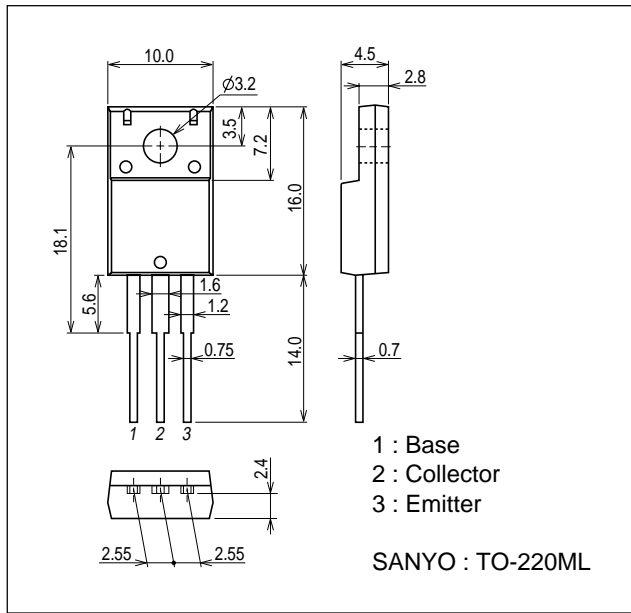
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Gain-Bandwidth Product	f_T	$V_{CE}=(-)5V, I_C=(-)1A$		100		MHz
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)5A, I_B=(-)0.25A$			(-)0.4	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)1mA, I_E=0A$	(-)80			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1mA, R_{BE}=\infty$	(-)60			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)1mA, I_C=0A$	(-)5			V
Turn-On Time	t_{on}	See specified Test Circuit.		0.1		μs
Storage Time	t_{stg}	See specified Test Circuit.		0.5		μs
Fall Time	t_f	See specified Test Circuit.		0.1		μs

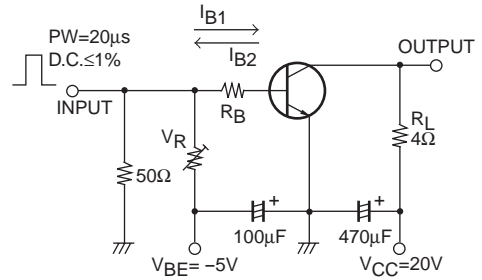
Package Dimensions

unit : mm (typ)

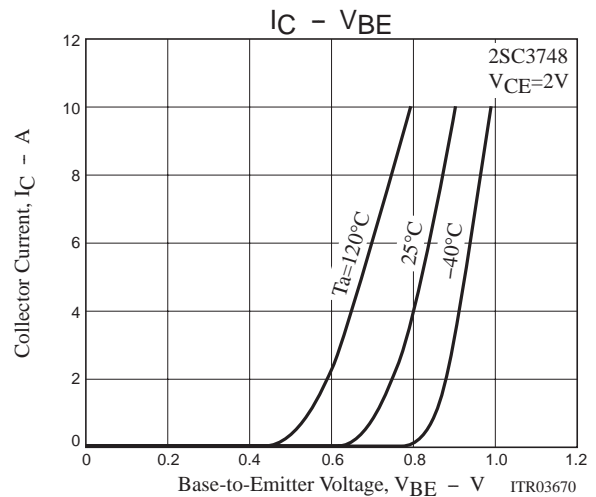
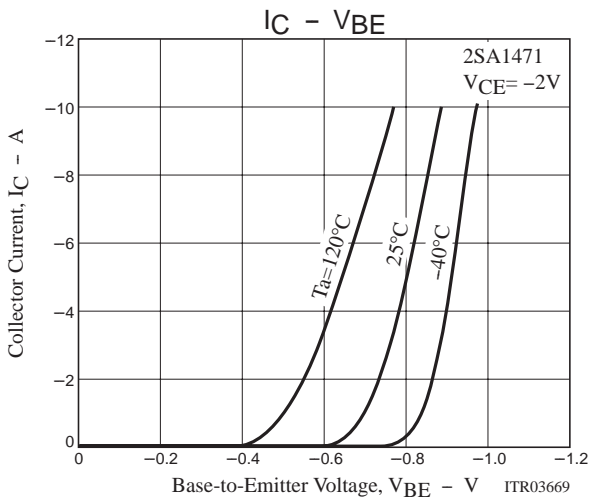
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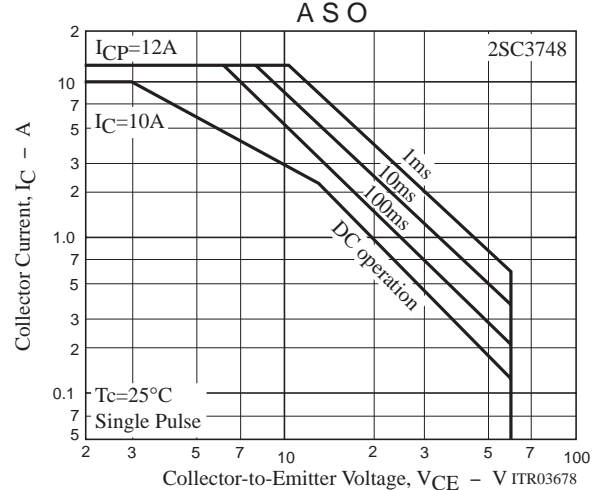
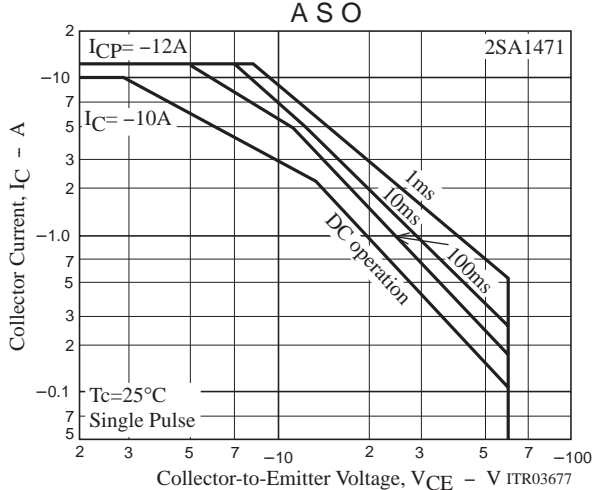
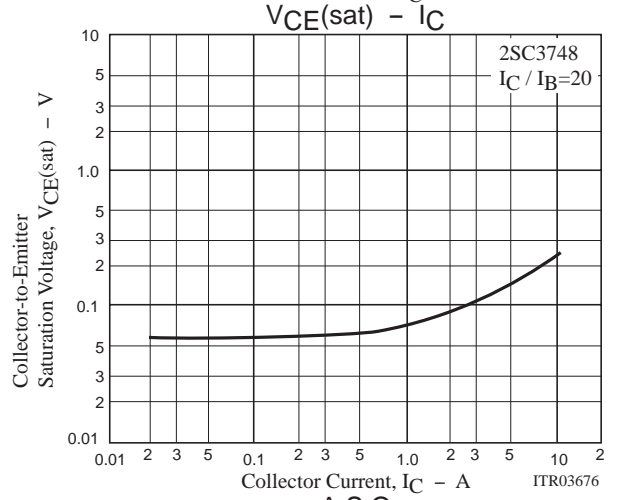
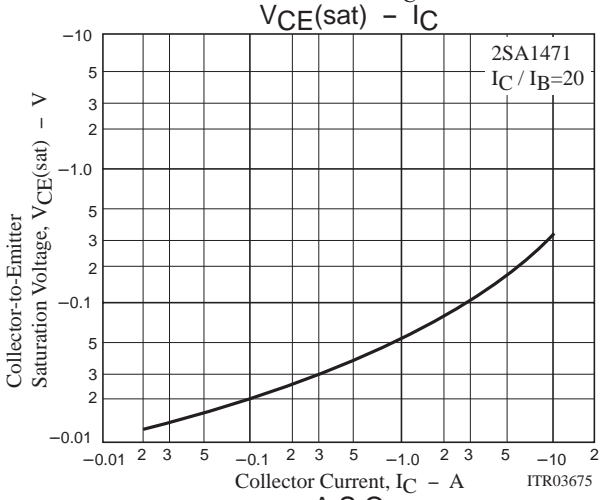
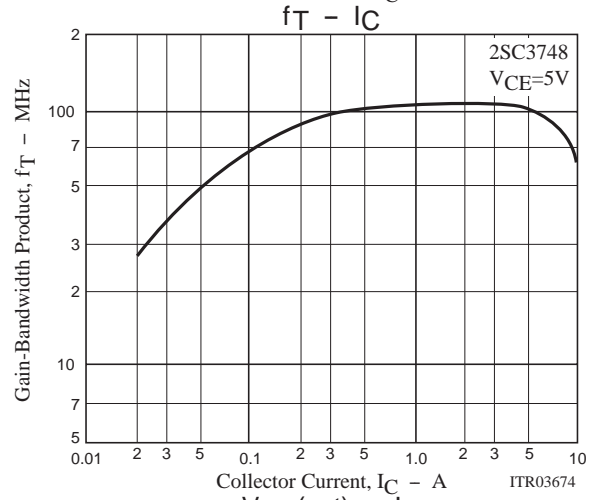
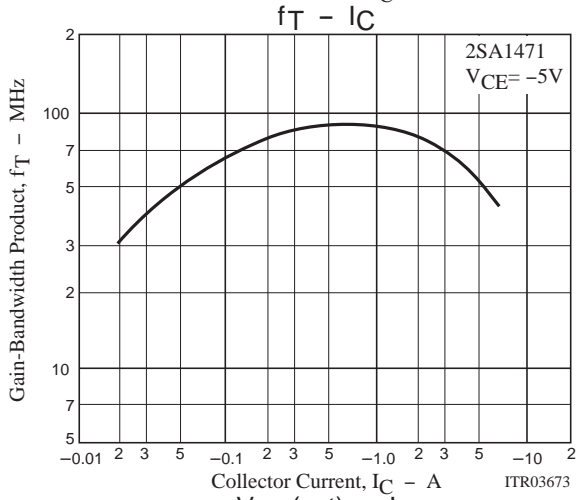
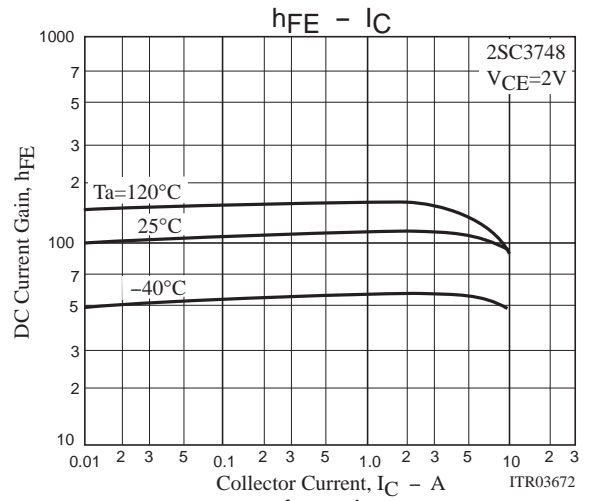
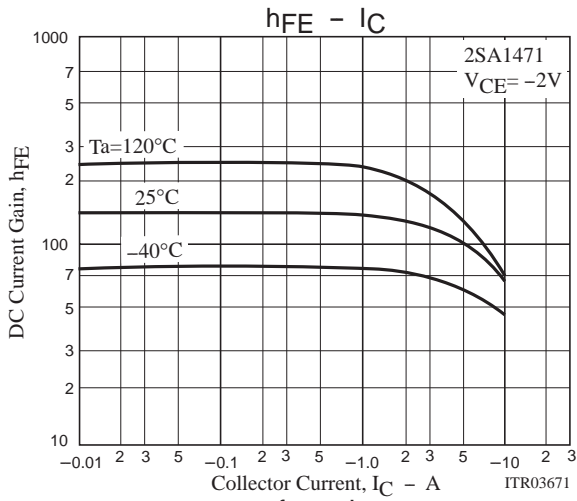
Switching Time Test Circuit



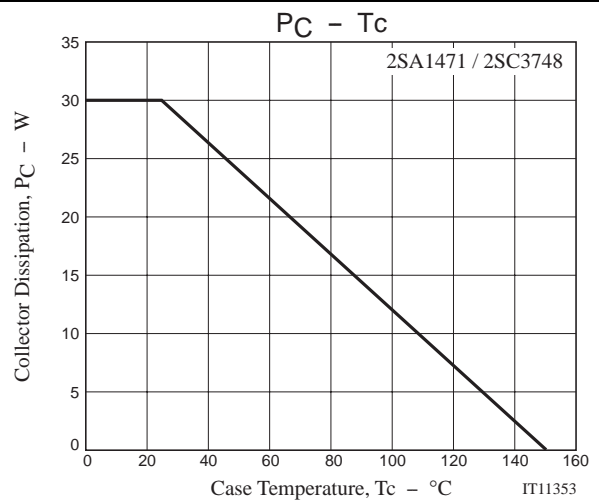
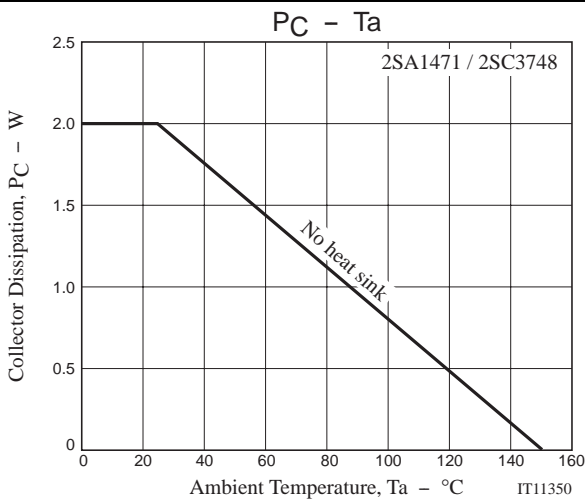
$20I_{B1} = -20I_{B2} = I_C = 5A$
 For PNP, the polarity is reversed.



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