



2SA1470/2SC3747

60V/7A High-Speed Switching Applications

Applications

- Inductance, lamp drivers.
- Inverters, converters (strobos, flashes, FLT lighting circuits).
- Power amplifiers (high-power car stereos, motor control).
- High-speed switching (switching regulators, drivers).

Features

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

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Specifications

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		(-)7	A
Collector Current (Pulse)	I_{CP}		(-)10	A
Collector Dissipation	P_C		2	W
		$T_c=25^\circ\text{C}$	25	W
Junction Temperature	T_j		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

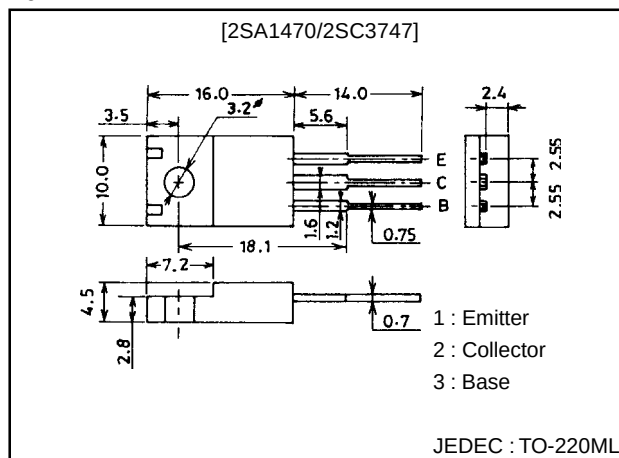
Electrical Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CB0}	$V_{CB}=(-)40\text{V}, I_E=0$			(-)0.1	mA
Emitter Cutoff Current	I_{EB0}	$V_{EB}=(-)4\text{V}, I_C=0$			(-)0.1	mA
DC Current Gain	h_{FE}	$V_{CE}=(-)2\text{V}, I_C=(-)1\text{A}$	70*		280*	
Gain-Bandwidth Product	f_T	$V_{CE}=(-)5\text{V}, I_C=(-)1\text{A}$		100		MHz
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)3.5\text{A}, I_B=(-)0.175\text{A}$			(-)0.4	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)1\text{mA}, I_E=0$	(-)80			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1\text{mA}, R_{BE}=\infty$	(-)60			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)1\text{mA}, I_C=0$	(-)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

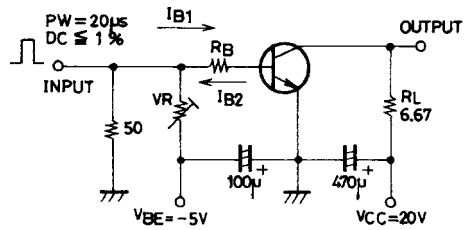
Package Dimensions

unit:mm

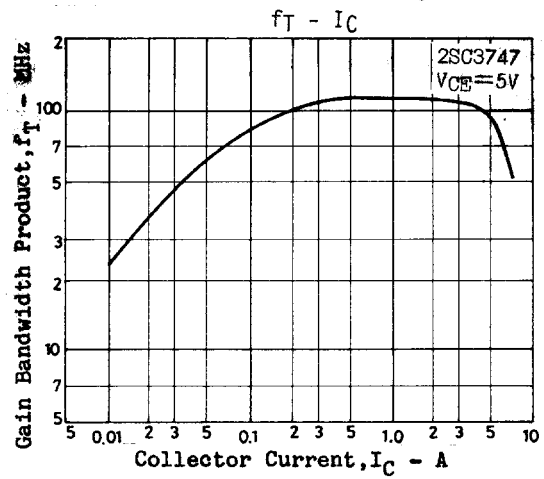
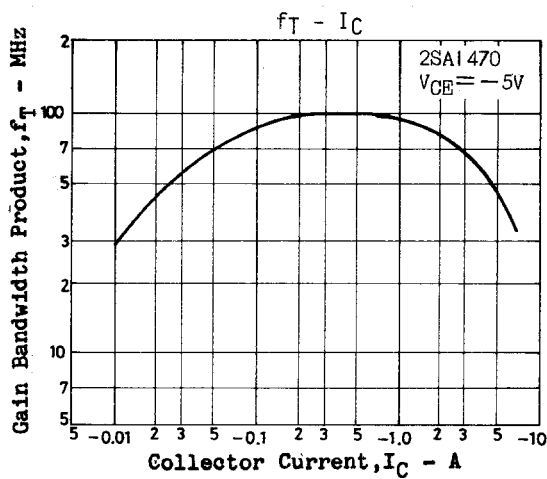
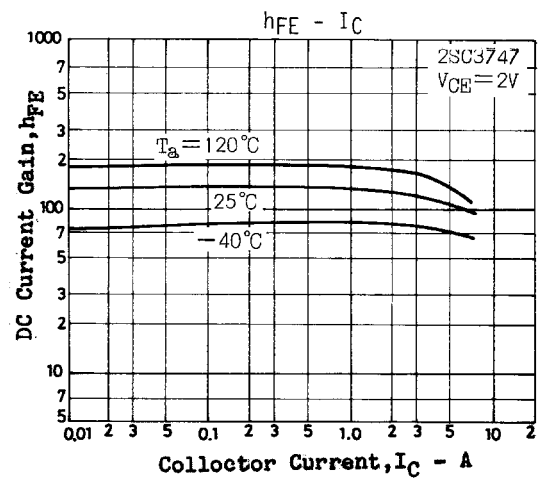
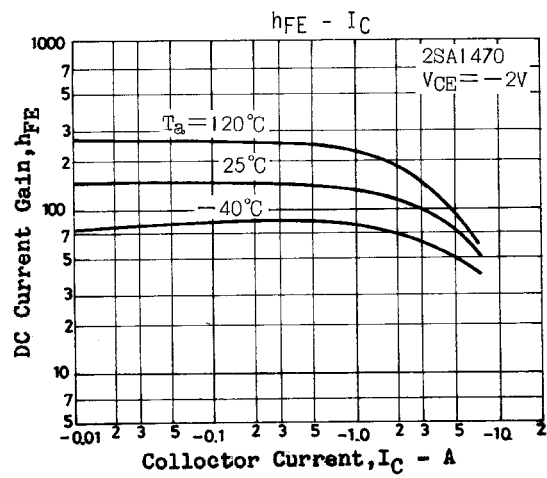
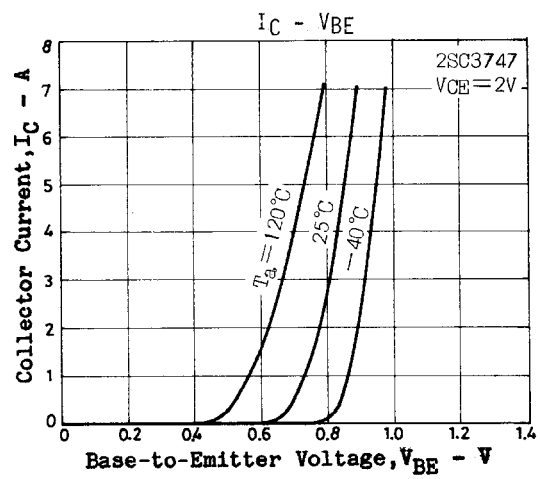
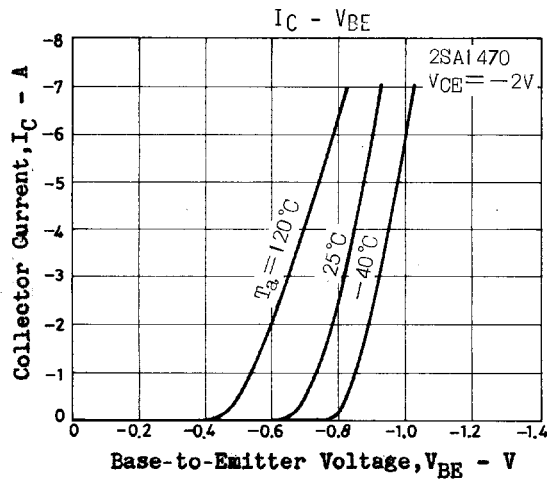
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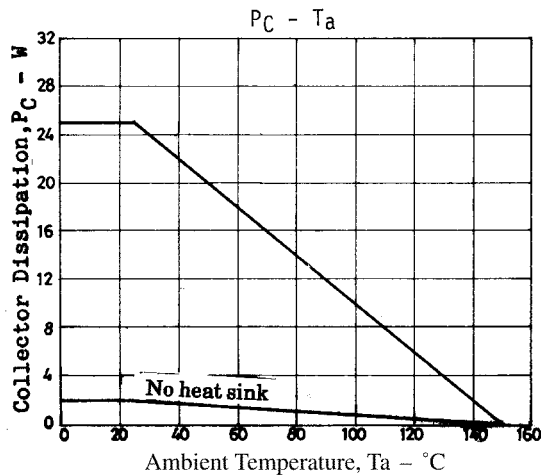
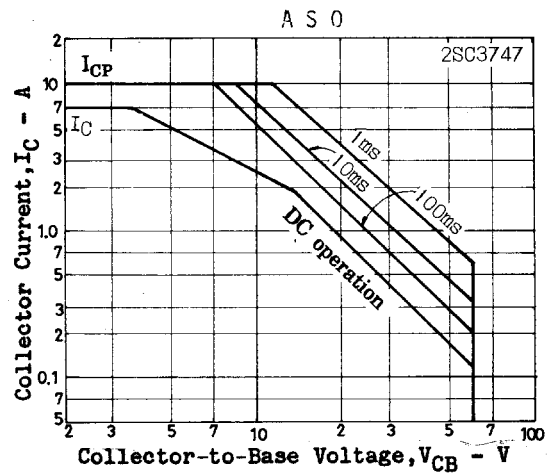
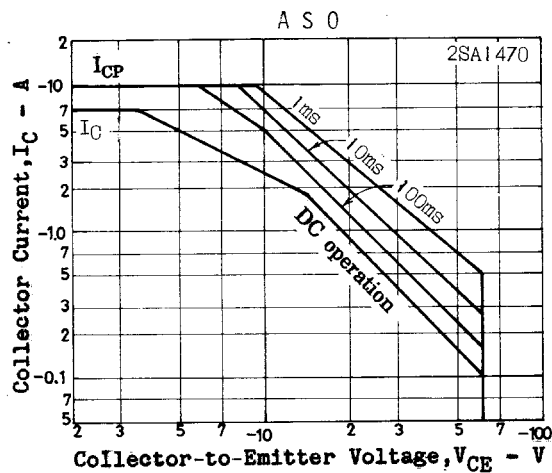
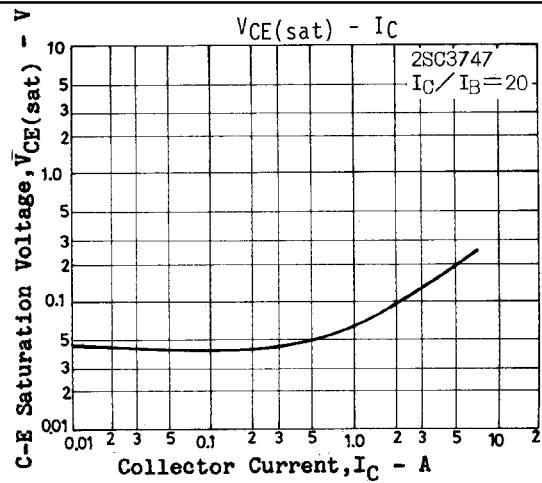
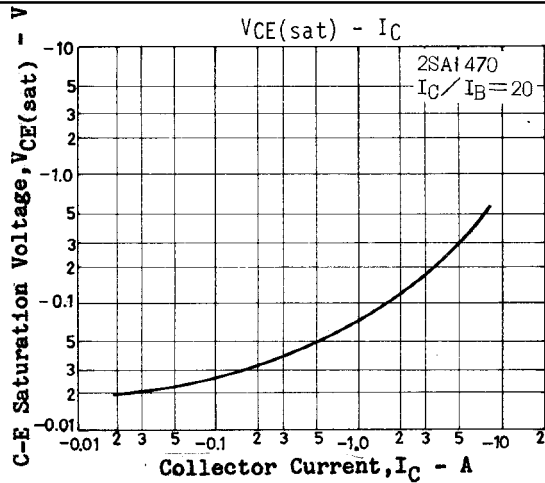


Switching Time Test Circuit



$20I_{B1} = -20I_{B2} = I_C = 3A$
(For PNP, the polarity is reversed.)
Unit (resistance: Ω, capacitance: F)





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