

# 2SA1471/2SC3748



## 60V/10A High-Speed Switching Applications

### Applications

- Car-use inductance drivers, lamp drivers.
- Inverters drivers, 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 speed.
- Micaless package facilitating mountig.

( ) : 2SA1471

### Specifications

#### Absolute Maximum Ratings at $T_a = 25^\circ C$

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	$V_{CBO}$		(-)80	V
Collector-to-Emitter Voltage	$V_{CEO}$		(-)60	V
Emitter-to-Base Voltage	$V_{EBO}$		(-)5	V
Collector Current	$I_C$		(-)10	A
Collector Current (Pulse)	$I_{CP}$		(-)12	A
Collector Dissipation	$P_C$		2	W
		$T_c=25^\circ C$	30	W
Junction Temperature	$T_J$		150	$^\circ C$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ C$

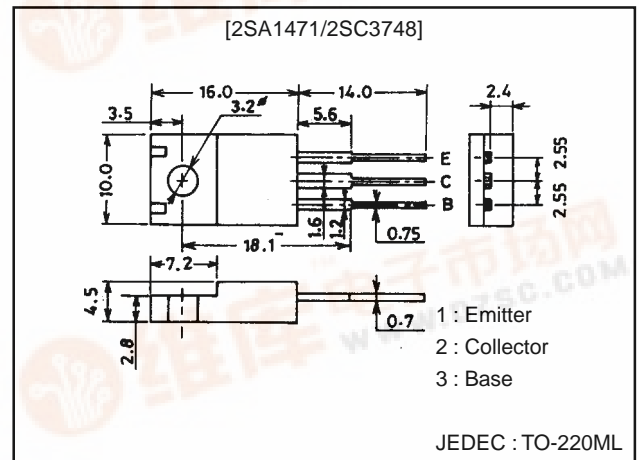
#### Electrical Characteristics at $T_a = 25^\circ C$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=(-)40V, I_E=0$			(-)0.1	mA
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=(-)4V, I_C=0$			(-)0.1	mA
DC Current Gain	$h_{FE}$	$V_{CE}=(-)2V, I_C=(-)1A$	70*		280*	
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	$V_{(BR)CBO}$	$I_C=(-)1mA, I_E=0$	(-)80			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1mA, R_{BE}=\infty$	(-)60			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)1mA, I_C=0$	(-)5			V
Turn-ON Time	$t_{on}$	See specified Test Circuit		0.1		$\mu s$
Storage Time	$t_{stg}$	See specified Test Circuit		0.5		$\mu s$
Fall Time	$t_f$	See specified Test Circuit		0.1		$\mu s$

### Package Dimensions

unit:mm

2041



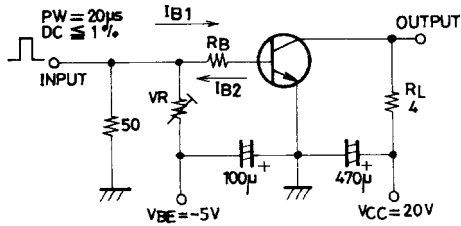
1 : Emitter  
2 : Collector  
3 : Base

JEDEC : TO-220ML



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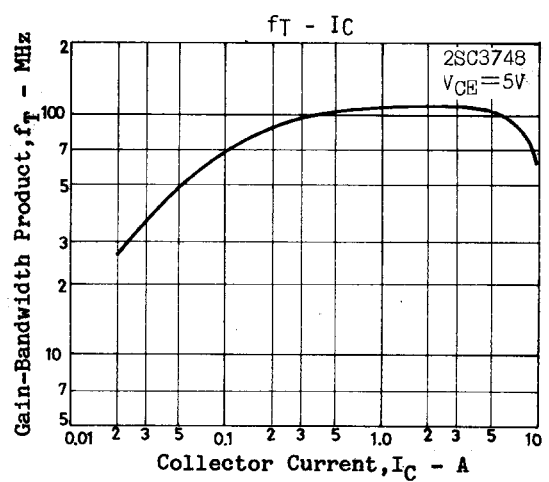
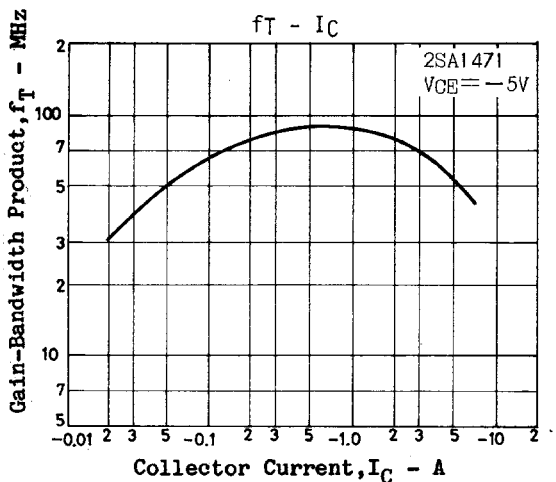
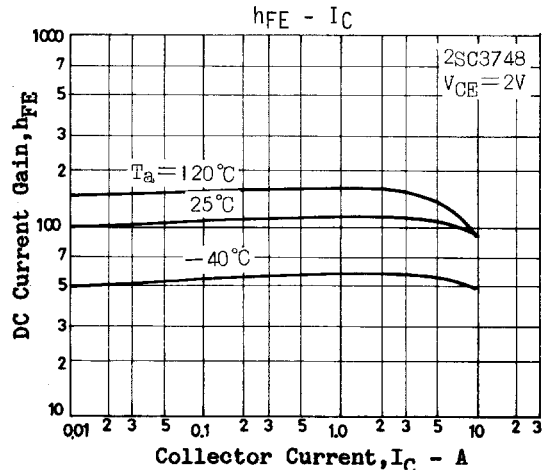
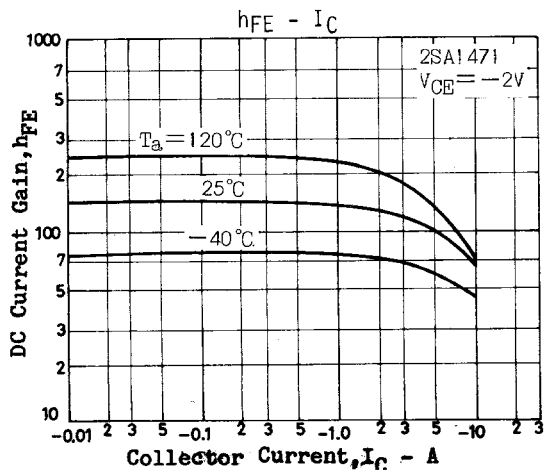
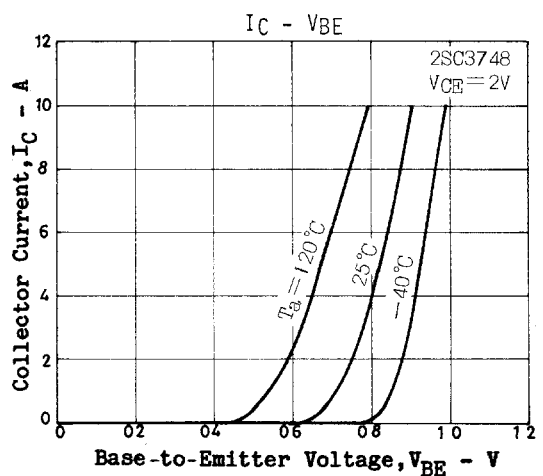
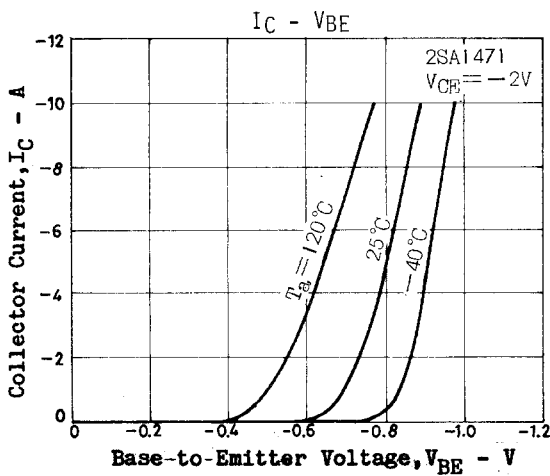
## Switching Time Test Circuit



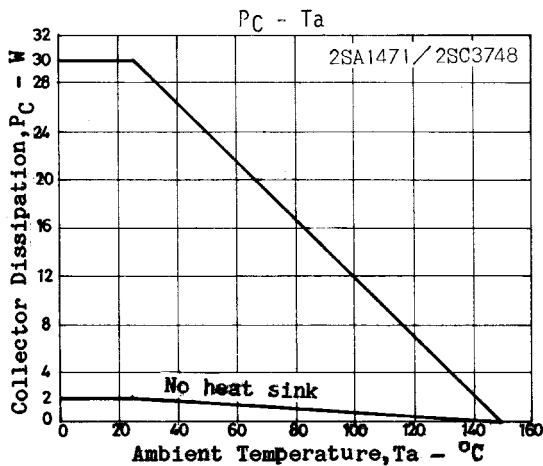
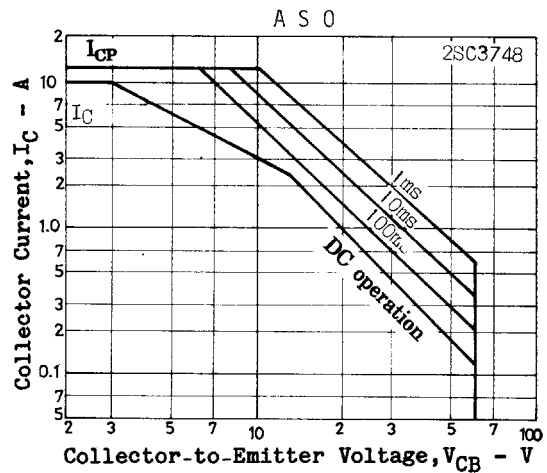
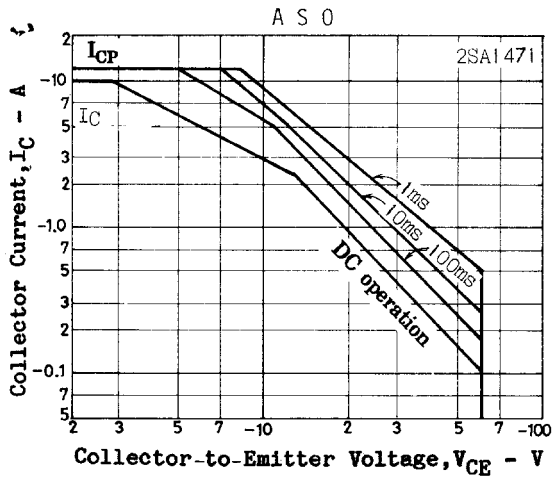
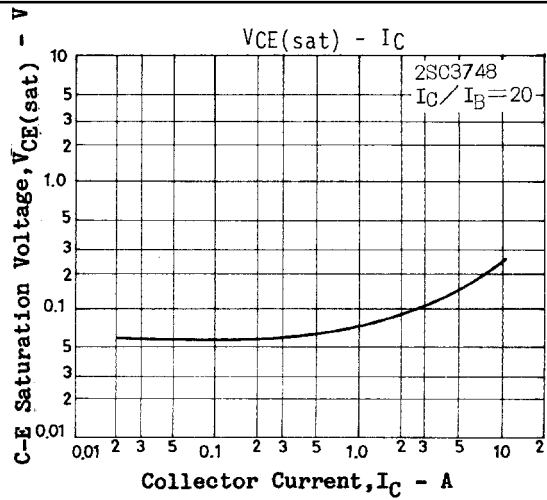
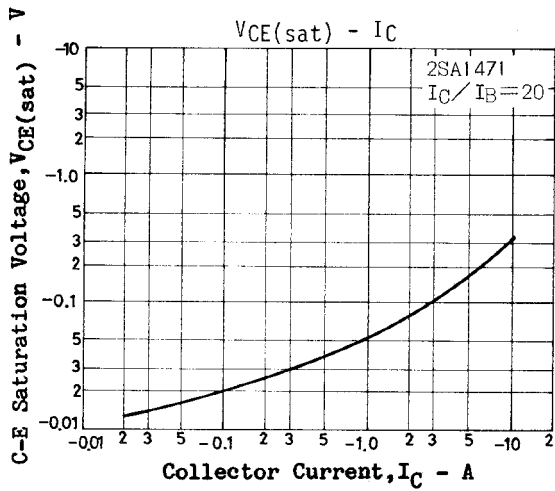
$$20I_{B1} = -20I_{B2} = I_C = 5A$$

(For PNP, the polarity is reversed.)

Unit (resistance : Ω, capacitance : F)



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