

**2SA1292/2SC3256****60V/15A High-Speed Switching Applications****Applications**

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

**Features**

- Low saturation voltage.
- Excellent dependence of  $h_{FE}$  on current.
- Fast switching time.

( ) : 2SA1292

**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	$I_C$		(-) $15$	A
Collector Current (Pulse)	$I_{CP}$		(-) $20$	A
Collector Dissipation	$P_C$	$T_c=25^\circ\text{C}$	$80$	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	$V_{CE(sat)}$	$I_C = (-)7.5\text{A}, I_B = (-)0.375\text{A}$			(-) $0.4$	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		$0.1$		$\mu\text{s}$
Storage Time	$t_{stg}$	See specified Test Circuit		$0.5$		$\mu\text{s}$
Fall Time	$t_f$	See specified Test Circuit		$0.1$		$\mu\text{s}$

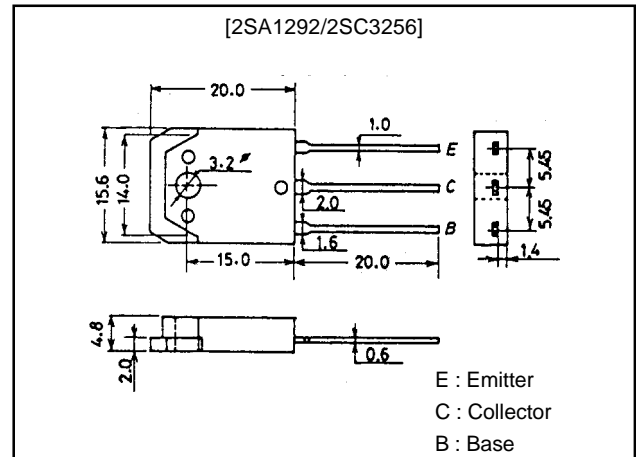
\* : The 2SA1292/2SC3256 are classified by 1A  $h_{FE}$  as follows :

70	Q	140	100	R	200	140	S	280
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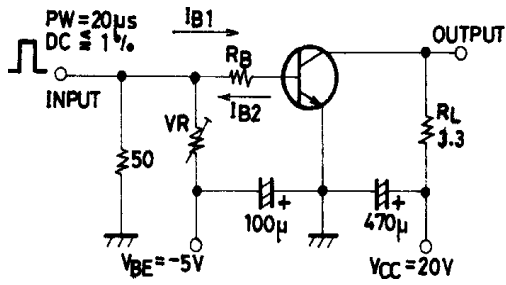
**Package Dimensions**

unit:mm

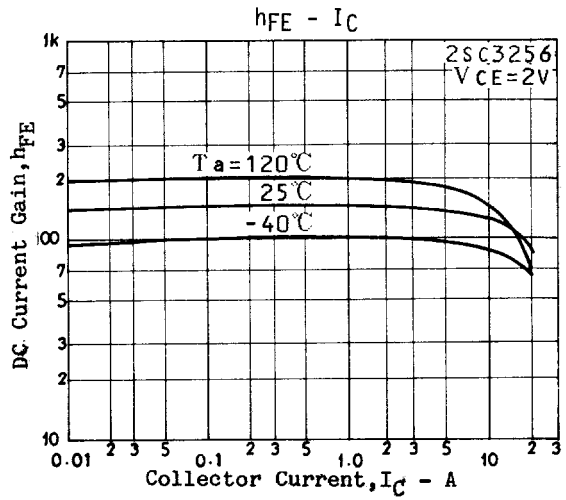
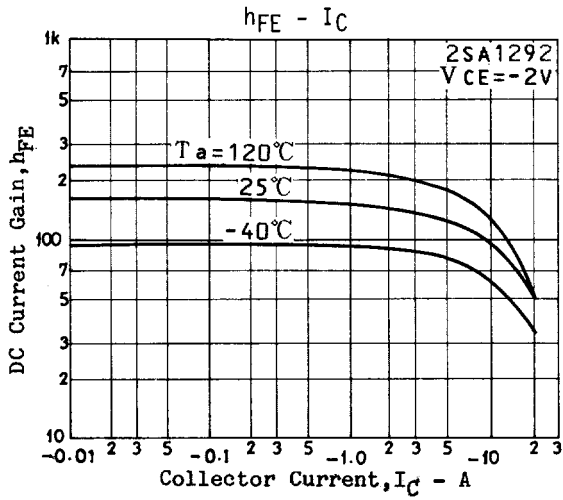
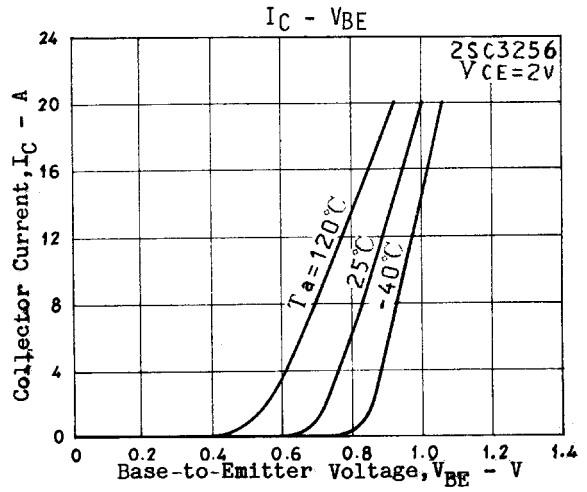
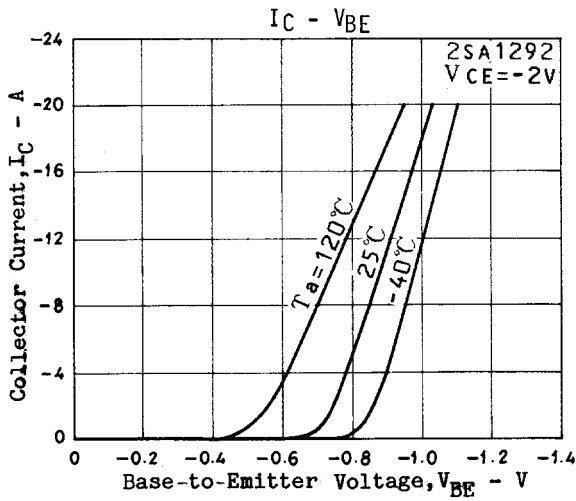
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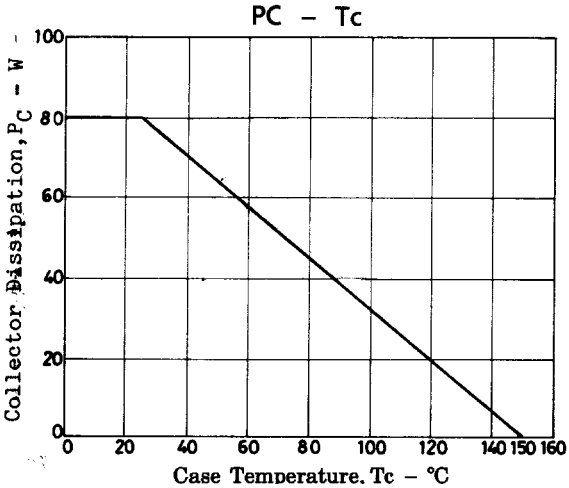
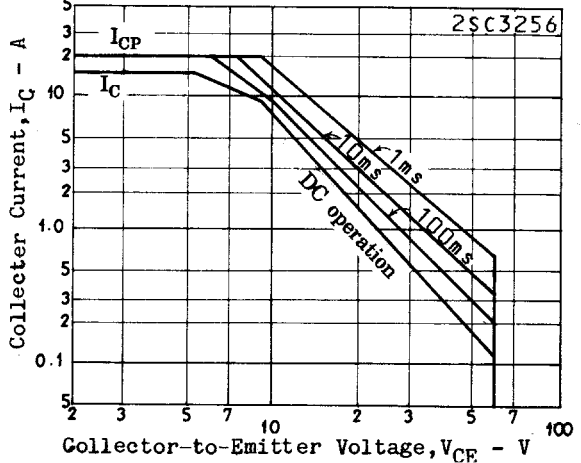
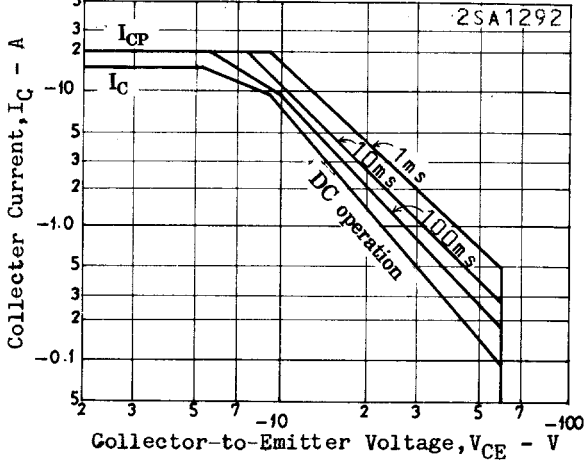
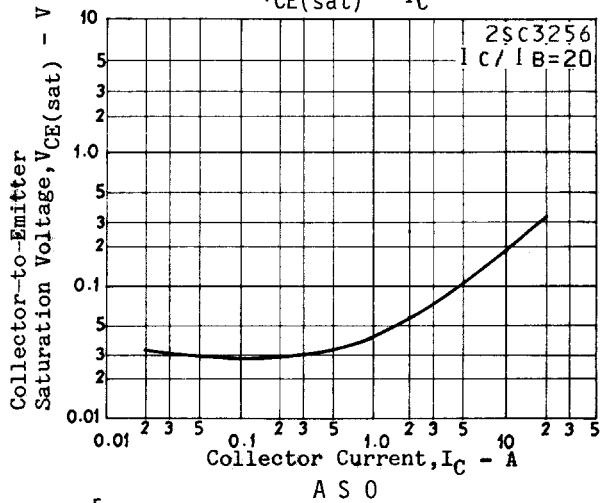
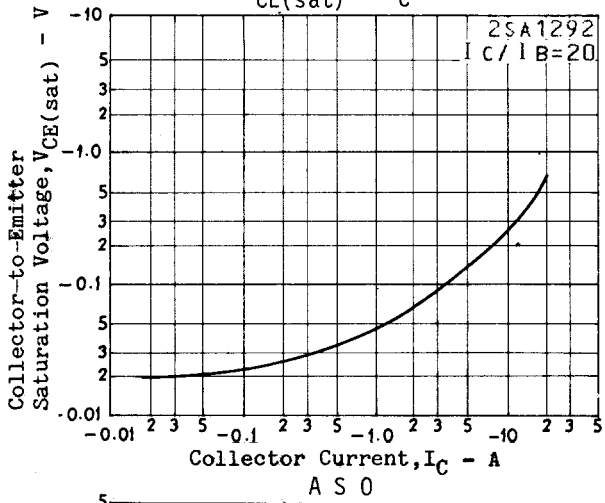
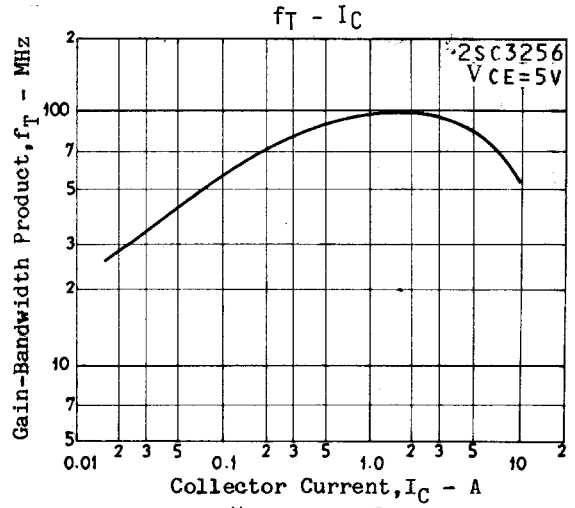
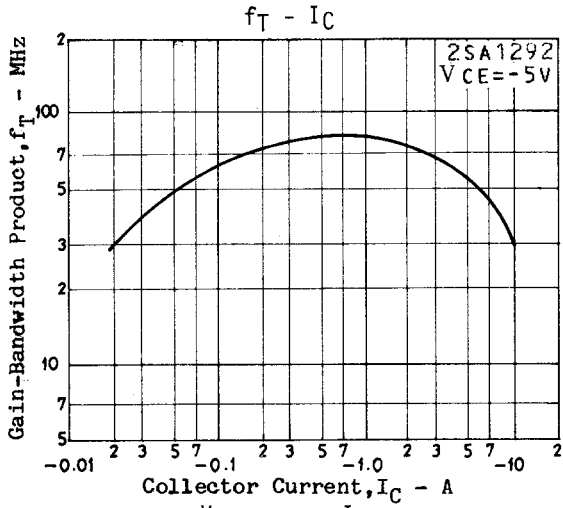
Switching Time Test Circuit



$20I_{B1} = -20I_{B2} = I_C = 6A$   
 (For PNP, the polarity is reversed)  
 Unit (resistance :  $\Omega$ , capacitance : F)



# 2SA1292/2SC3256



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