

**SANYO**

No.686I

**2SB824/2SD1060**

PNP/NPN Epitaxial Planar Silicon Transistors

50V/5A Switching Applications

**APPLICATIONS**

- Suitable for relay drivers, high-speed inverters, converters, and other general large-current switching

**FEATURES**

- Low collector-emitter saturation voltage:  $V_{CE(sat)} = (-)0.4V \text{ max} / I_C = (-)3A, I_B = (-)0.3A$

Values for 2SB824 shown in ( )

**ABSOLUTE MAXIMUM RATINGS/ $T_a = 25^\circ C$**

			unit
Collector-to-base voltage	$V_{CBO}$	(-)60	V
Collector-to-emitter voltage	$V_{CEO}$	(-)50	V
Emitter-to-base voltage	$V_{EBO}$	(-)6	V
Collector current	$I_C$	(-)5	A
<b>Collector Current (Pulse)</b>	$I_{CP}$	(-)9	A
Allowable collector dissipation	$P_C$	$T_c = 25^\circ C$ 30	W
Junction temperature	$T_j$	150	$^\circ C$
Storage ambient temperature	$T_{stg}$	-55~+150	$^\circ C$

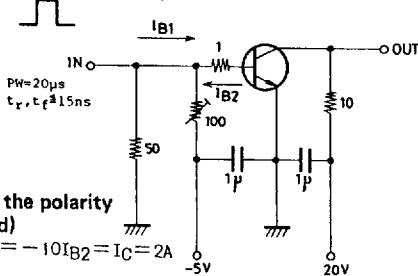
**ELECTRICAL CHARACTERISTICS/ $T_a = 25^\circ C$**

			min	typ	max	unit
Collector cut-off current	$I_{CBO}$	$V_{CB} = (-)40V, I_E = 0$			(-)0.1	mA
Emitter cut-off current	$I_{EBO}$	$V_{EB} = (-)4V, I_C = 0$			(-)0.1	mA
DC current gain	$h_{FE(1)}$	$V_{CE} = (-)2V, I_C = (-)1A$	70*		280*	
	$h_{FE(2)}$	$V_{CE} = (-)2V, I_C = (-)3A$	30			
Gain bandwidth product	$f_T$	$V_{CE} = (-)5V, I_C = (-)1A$		30		MHz
			Output capacitance	$C_{ob}$	$V_{CB} = (-)10V, f = 1MHz$	100
				(160)		pF
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = (-)3A, I_B = (-)0.3A$			(-)0.4	V
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = (-)1mA, I_E = 0$	(-)60			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = (-)1mA, R_{BE} = \infty$	(-)50			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = (-)1mA, I_C = 0$	(-)6			V
Turn-on time	$t_{on}$	at the appointed circuit		0.1		$\mu s$
Storage time	$t_{stg}$	at the appointed circuit	(0.7)1.4			$\mu s$
Fall time	$t_f$	at the appointed circuit		0.2		$\mu s$

\* 2SB824 and 2SD1060 are graded as follows by  $h_{FE}$  at 1A:

70	Q	140	100	R	200	140	S	280
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Switching time measurement circuit



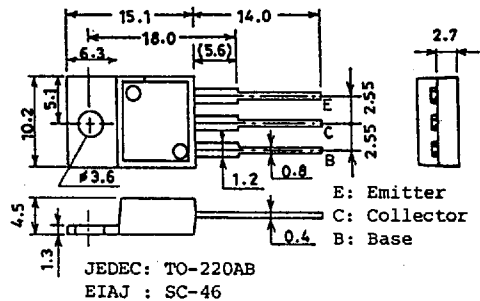
(For PNP, the polarity is reversed)

$10I_{B1} = -10I_{B2} = I_C = 2A$

Unit (resistance :  $\Omega$ , capacitance : F)

**Package Dimensions 2010B**

(unit : mm)



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