

**PNP SILICON EPITAXIAL TRANSISTOR
FOR HIGH-VOLTAGE HIGH-SPEED SWITCHING**

The 2SA1010 is a mold power transistor developed for high-voltage high-speed switching, and is ideal for use as a driver in devices such as switching regulators, DC/DC converters, and high-frequency power amplifiers.

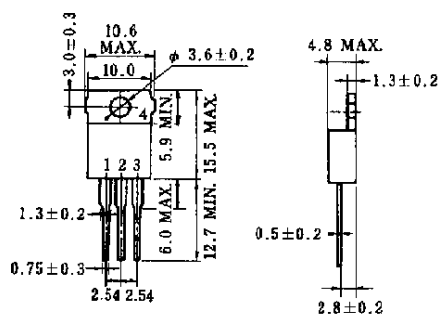
FEATURES

- Low collector saturation voltage
- Fast switching speed
- Complementary transistor: 2SC2334

ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

Parameter	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	-100	V
Collector to emitter voltage	V_{CEO}	-100	V
Emitter to base voltage	V_{EBO}	-7.0	V
Collector current (DC)	$I_{C(DC)}$	-7.0	A
Collector current (pulse)	$I_{C(pulse)}^*$	-15	A
Base current (DC)	$I_{B(DC)}$	-3.5	A
Total power dissipation	P_T (Tc = 25 °C)	40	W
Total power dissipation	P_T (Ta = 25 °C)	1.5	W
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	-55 to +150	°C

* $PW \leq 300 \mu s$, duty cycle $\leq 10\%$

PACKAGE DRAWING (UNIT: mm)

Pin Connection

1. Base
2. Collector
3. Emitter
4. Fin (Collector)

EIAJ : SC-46
JEDEC : TO-220AB
IEC : —

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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

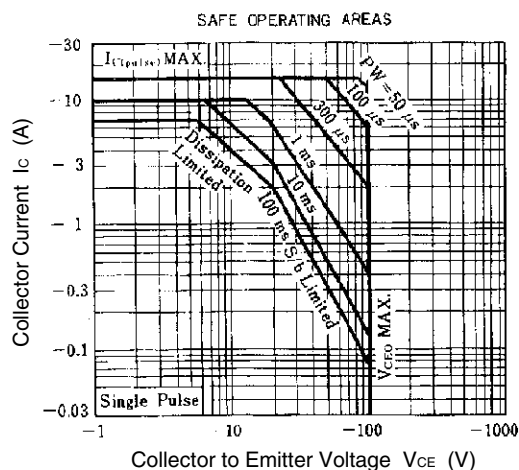
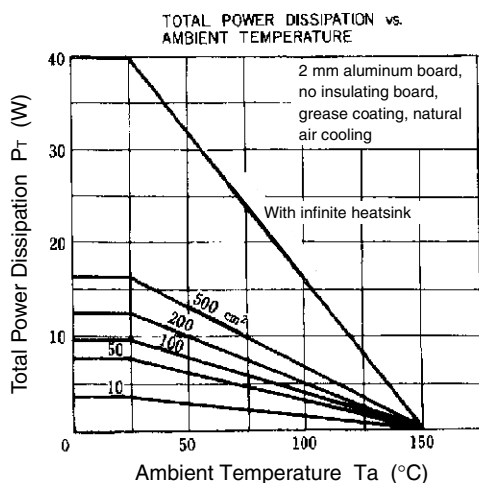
Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Collector to emitter voltage	$V_{CE0(SUS)}$	$I_C = -5.0\text{ A}$, $I_{B1} = -0.5\text{ A}$, $L = 1\text{ mH}$	-100			V
Collector to emitter voltage	$V_{CEX(SUS)1}$	$I_C = -5.0\text{ A}$, $I_{B1} = -I_{B2} = -0.5\text{ A}$, $V_{BE(OFF)} = 5.0\text{ V}$, $L = 180\text{ }\mu\text{H}$, clamped	-100			V
Collector to emitter voltage	$V_{CEX(SUS)2}$	$I_C = -10\text{ A}$, $I_{B1} = -1.0\text{ A}$, $I_{B2} = -0.5\text{ A}$, $V_{BE(OFF)} = 5.0\text{ V}$, $L = 180\text{ }\mu\text{H}$, clamped	-100			V
Collector cutoff current	I_{CBO}	$V_{CB} = -100\text{ V}$, $I_E = 0$			-10	μA
Collector cutoff current	I_{CER}	$V_{CE} = -100\text{ V}$, $R_{BE} = 51\text{ }\Omega$, $T_a = 125\text{ }^\circ\text{C}$			-1.0	mA
Collector cutoff current	I_{CEX1}	$V_{CE} = -100\text{ V}$, $V_{BE(OFF)} = 1.5\text{ V}$			-10	μA
Collector cutoff current	I_{CEX2}	$V_{CE} = -100\text{ V}$, $V_{BE(OFF)} = 1.5\text{ V}$, $T_a = 125\text{ }^\circ\text{C}$			-1.0	mA
Emitter cutoff current	I_{EBO}	$V_{EB} = -5.0\text{ V}$, $I_C = 0$			-10	μA
DC current gain	h_{FE1}	$V_{CE} = -5.0\text{ V}$, $I_C = -0.5\text{ A}^*$	40		200	
DC current gain	h_{FE2}	$V_{CE} = -5.0\text{ V}$, $I_C = -3.0\text{ A}^*$	40		200	
DC current gain	h_{FE3}	$V_{CE} = -5.0\text{ V}$, $I_C = -5.0\text{ A}^*$	20			
Collector saturation voltage	$V_{CE(sat)}$	$I_C = -5.0\text{ A}$, $I_B = -0.5\text{ A}^*$			-0.6	V
Base saturation voltage	$V_{BE(sat)}$	$I_C = -5.0\text{ A}$, $I_B = -0.5\text{ A}^*$			-1.5	V
Turn-on time	t_{on}	$I_C = -5.0\text{ A}$, $R_L = 10\text{ }\Omega$, $I_{B1} = -I_{B2} = -0.5\text{ A}$, $V_{CC} \cong -50\text{ V}$ Refer to the test circuit.			0.5	μs
Storage time	t_{stg}				1.5	μs
Fall time	t_f				0.5	μs

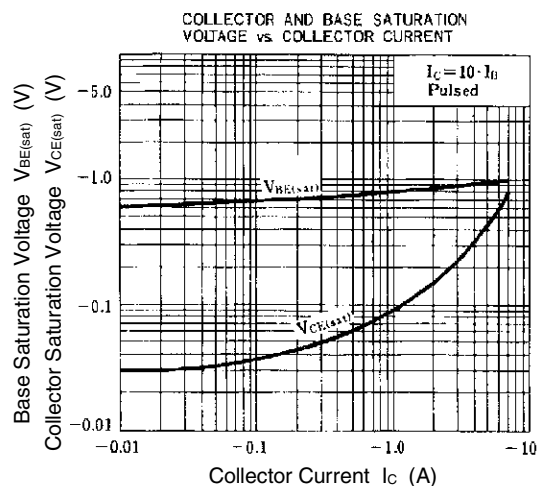
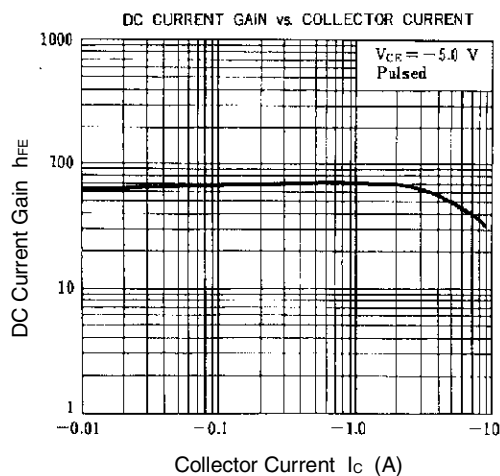
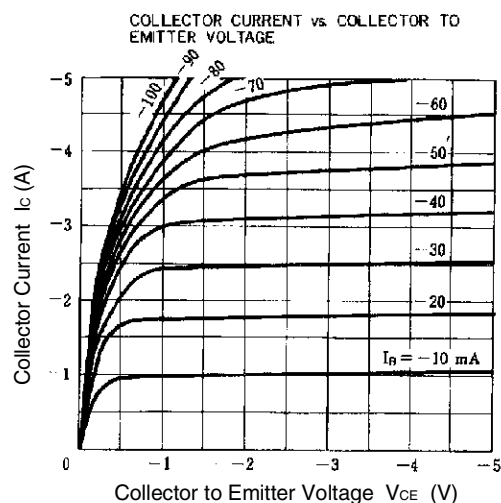
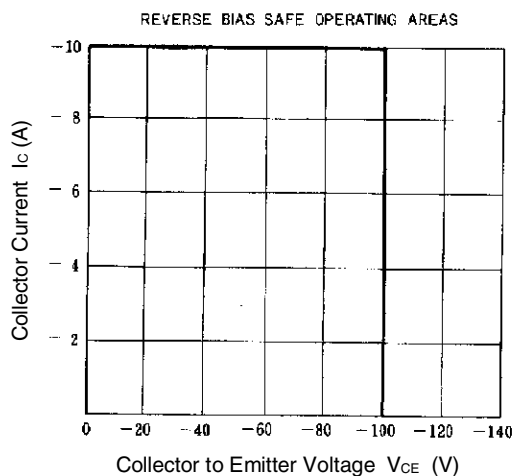
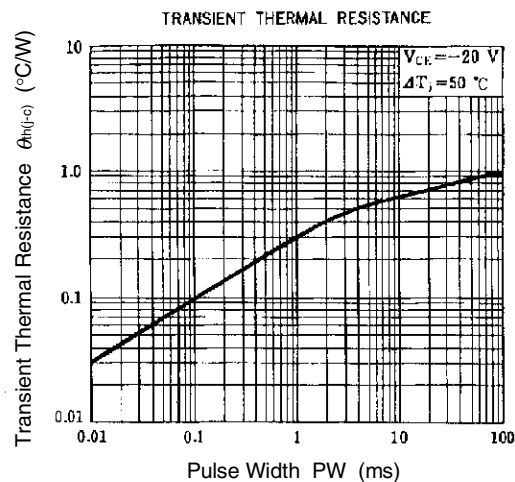
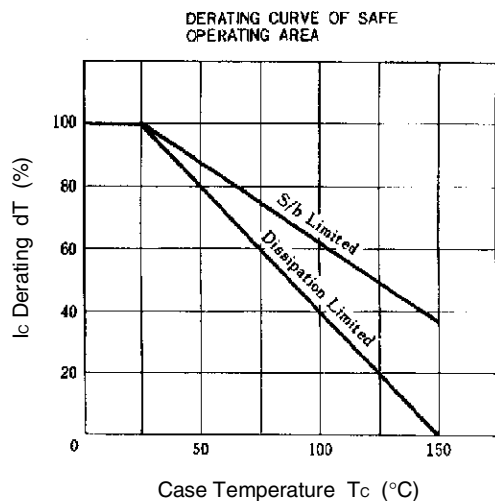
* Pulse test $PW \leq 350\text{ }\mu\text{s}$, duty cycle $\leq 2\%$

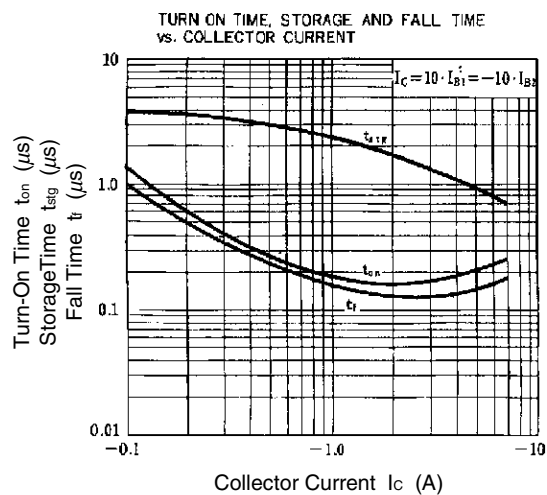
h_{FE} CLASSIFICATION

Marking	M	L	K
h_{FE2}	40 to 80	60 to 120	100 to 200

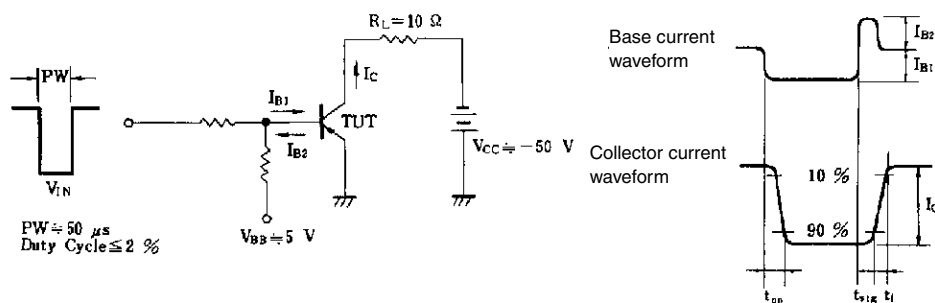
TYPICAL CHARACTERISTICS (Ta = 25°C)







SWITCHING TIME (t_{on} , t_{stg} , t_f) TEST CIRCUIT



[MEMO]

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