SILICON POWER TRANSISTOR 2SC2334

NPN SILICON EPITAXIAL TRANSISTOR FOR HIGH-SPEED SWITCHING

The 2SC2334 is a mold power transistor developed for 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.

Part No. Package 2SC2334

FEATURES

- · Low collector saturation voltage
- · Fast switching speed

NEC

· Complementary transistor: 2SA1010

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^{\circ}C$)

Parameter	Symbol	Conditions	Ratings	Unit
Collector to base voltage	Vсво		150	V
Collector to emitter voltage	VCEO		100	V
Emitter to base voltage	Vebo		7.0	V
Collector current (DC)	IC(DC)		7.0	Α
Collector current (pulse)	C(pulse)	PW ≤ 300 <i>μ</i> s,	15	Α
		duty cycle $\leq 10\%$		
Base current (DC)	IB(DC)		3.5	А
Total power dissipation	Р⊤	Tc = 25°C	40	W
		$T_A = 25^{\circ}C$	1.5	W
Junction temperature	Tj		150	°C
Storage temperature	Tstg		-55 to +150	°C

TO-220AB

ORDERING INFORMATION

(TO-220AB)



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ELECTRICAL CHARACTERISTICS (TA = 25°C)

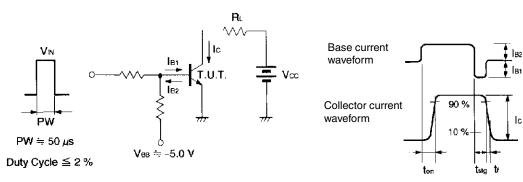
Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Collector to emitter voltage	VCEO(SUS)	Ic = 5.0 A, Iв1 = 0.5 A, L = 1 mH	100			V
	VCEX(SUS)1	Ic = 5.0 A, I _{B1} = $-I_{B2}$ = 0.5 A, V _{BE(OFF)} = -5.0 V, L = 180 μ H, clamped	100			V
	VCEX(SUS)2	Ic = 10 A, I _{B1} = 1.0 A, I _{B2} = -0.5 A, V _{BE(OFF)} = -5.0 V, L = 180 μ H, clamped	100			V
Collector cutoff current	Ісво	$V_{CB} = 100 \text{ V}, \text{ I}_{E} = 0 \text{ A}$			10	μA
	ICER	$V_{CE} = 100 \text{ V}, \text{ R}_{BE} = 51 \Omega, \text{ T}_{A} = 125^{\circ}\text{C}$			1.0	mA
	ICEX1	$V_{CE} = 100 \text{ V}, \text{ V}_{BE(OFF)} = -1.5 \text{ V}$			10	μA
	ICEX2	$V_{CE} = 100 \text{ V}, \text{ V}_{BE(OFF)} = -1.5 \text{ V},$ TA = 125°C			1.0	mA
Emitter cutoff current	Іево	V _{EB} = 5.0 V, Ic = 0 A			10	μA
DC current gain	h _{FE1}	$V_{CE} = 5.0 \text{ V}, \text{ Ic} = 0.5 \text{ A}^{\text{Note}}$	40			
	hfe2	$V_{CE} = 5.0 \text{ V}, \text{ Ic} = 3.0 \text{ A}^{Note}$	40		200	
	h _{FE3}	$V_{CE} = 5.0 \text{ V}, \text{ Ic} = 5.0 \text{ A}^{\text{Note}}$	20			
Collector saturation voltage	VCE(sat)	$I_{C} = 5.0 \text{ A}, I_{B} = 0.5 \text{ A}^{Note}$			0.6	V
Base saturation voltage	V _{BE(sat)}	$I_{C} = 5.0 \text{ A}, I_{B} = 0.5 \text{ A}^{Note}$			1.5	V
Turn-on time	ton	lc = 5.0 A, R∟ = 10 Ω,			0.5	μs
Storage time	tstg	$I_{B1} = -I_{B2} = -0.5 \text{ A}, \text{ Vcc} \cong 50 \text{ V}$			1.5	μs
Fall time	tr	Refer to the test circuit.			0.5	μs

Note Pulse test PW \leq 350 μ s, duty cycle \leq 2%

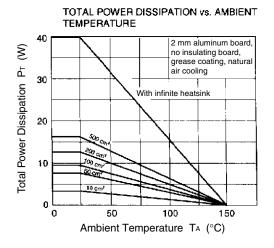
hfe CLASSIFICATION

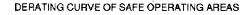
Marking	М	L	К	
hfe2	40 to 80	60 to 120	100 to 200	

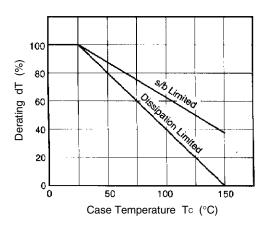
SWITCHING TIME (ton, tstg, tf) TEST CIRCUIT



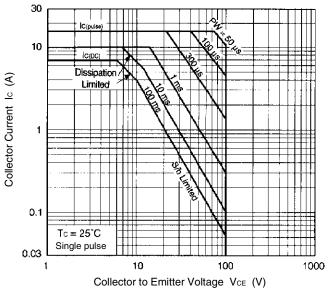


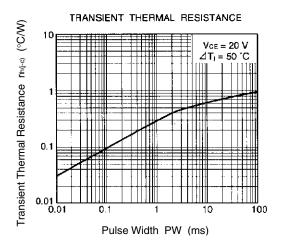


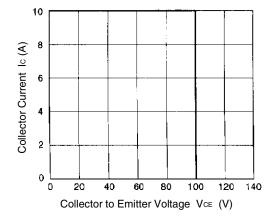




FORWARD BIAS SAFE OPERATING AREAS

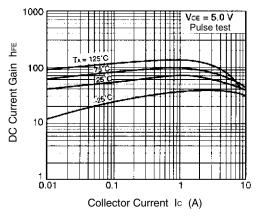




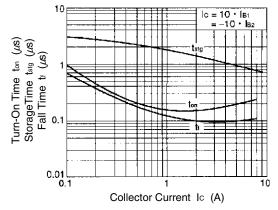


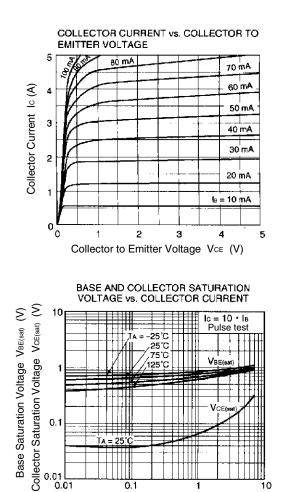
REVERSE BIAS SAFE OPERATING AREAS





TURN ON TIME, STORAGE TIME AND FALL TIME vs. COLLECTOR CURRENT





0.1

0.01 0.01

Ta = 25°0

0.1

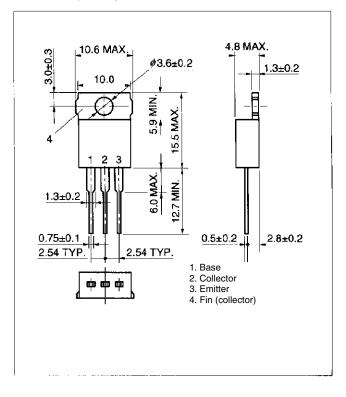
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Collector Current Ic (A)

10

PACKAGE DRAWING (UNIT: mm)

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