

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.

FEATURES

- · Low collector saturation voltage
- · Fast switching speed
- Complementary transistor: 2SA1010

ABSOLUTE MAXIMUM RATINGS (TA = 25°C)

Parameter	Symbol	Conditions	Ratings	Unit
Collector to base voltage	Vсво		150	٧
Collector to emitter voltage	VCEO		100	٧
Emitter to base voltage	VEBO		7.0	٧
Collector current (DC)	Ic(DC)		7.0	Α
Collector current (pulse)	IC(pulse)	PW ≤ 300 <i>μ</i> s,	15	Α
		duty cycle ≤ 10%		
Base current (DC)	I _{B(DC)}		3.5	Α
Total power dissipation	Р⊤	Tc = 25°C	40	W
		T _A = 25°C	1.5	W
Junction temperature	Tj		150	°C
Storage temperature	T _{stg}		-55 to +150	°C

ORDERING INFORMATION

Part No.	Package		
2SC2334	TO-220AB		

(TO-220AB)



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ELECTRICAL CHARACTERISTICS (TA = 25°C)

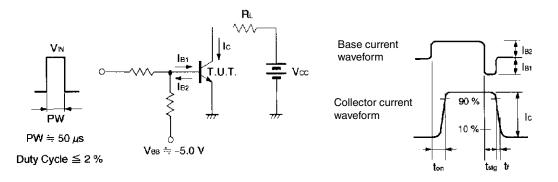
Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Collector to emitter voltage	VCEO(SUS)	Ic = 5.0 A, Ів1 = 0.5 A, L = 1 mH	100			V
	VCEX(SUS)1	Ic = 5.0 A, I _{B1} = $-I_{B2}$ = 0.5 A, V _{BE(OFF)} = -5.0 V, L = 180 μ H, clamped	100			V
	VCEX(SUS)2	Ic = 10 A, I _{B1} = 1.0 A, I _{B2} = -0.5 A, V _{BE(OFF)} = -5.0 V, L = 180μ H, clamped	100			V
Collector cutoff current	Ісво	V _{CB} = 100 V, I _E = 0 A			10	μΑ
	ICER	$V_{CE} = 100 \text{ V}, \text{ Rbe} = 51 \Omega, \text{ Ta} = 125^{\circ}\text{C}$			1.0	mA
	ICEX1	$V_{CE} = 100 \text{ V}, V_{BE(OFF)} = -1.5 \text{ V}$			10	μΑ
	ICEX2	Vce = 100 V, Vbe(OFF) = -1.5 V, Ta = 125°C			1.0	mA
Emitter cutoff current	І ЕВО	V _{EB} = 5.0 V, I _C = 0 A			10	μА
DC current gain	h _{FE1}	$V_{CE} = 5.0 \text{ V}, I_{C} = 0.5 \text{ A}^{Note}$	40			
	h _{FE2}	$V_{CE} = 5.0 \text{ V}, I_{C} = 3.0 \text{ A}^{Note}$	40		200	
	h _{FE3}	$V_{CE} = 5.0 \text{ V}, I_{C} = 5.0 \text{ A}^{Note}$	20			
Collector saturation voltage	V _{CE(sat)}	Ic = 5.0 A, I _B = 0.5 A ^{Note}			0.6	V
Base saturation voltage	V _{BE(sat)}	$I_C = 5.0 \text{ A}, I_B = 0.5 \text{ A}^{\text{Note}}$			1.5	V
Turn-on time	ton	Ic = 5.0 A, R _L = 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	tf	Refer to the test circuit.			0.5	μs

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

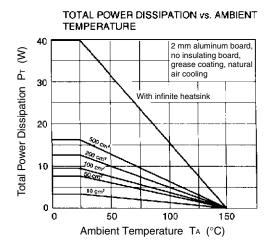
hfe CLASSIFICATION

Marking	М	L	К	
h _{FE2}	40 to 80	60 to 120	100 to 200	

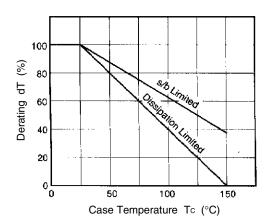
SWITCHING TIME (ton, tstg, tf) TEST CIRCUIT



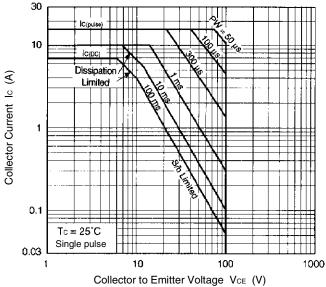
TYPICAL CHARACTERISTICS (TA = 25°C)



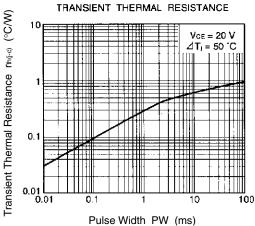
DERATING CURVE OF SAFE OPERATING AREAS



FORWARD BIAS SAFE OPERATING AREAS

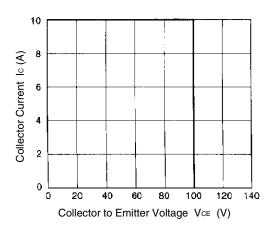




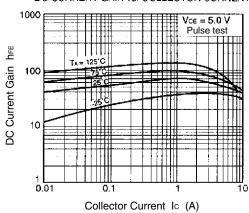


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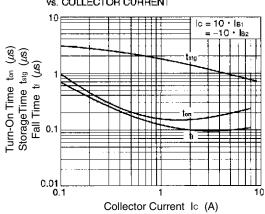
REVERSE BIAS SAFE OPERATING AREAS



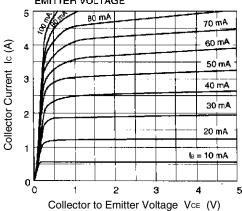
DC CURRENT GAIN vs. COLLECTOR CURRENT



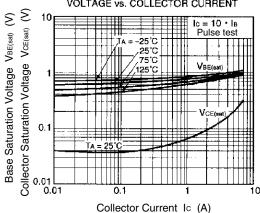
TURN ON TIME, STORAGE TIME AND FALL TIME vs. COLLECTOR CURRENT



COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



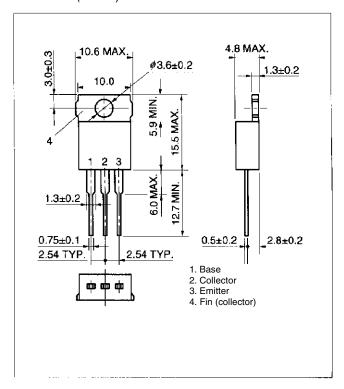
BASE AND COLLECTOR SATURATION VOLTAGE vs. COLLECTOR CURRENT





PACKAGE DRAWING (UNIT: mm)

TO-220AB (MP-25)



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