

HIGH SPEED SWITCHING NPN SILICON EPITAXIAL TRANSISTOR POWER MINI MOLD

DESCRIPTION

The 2SC3736 is designed for power amplifier and high speed switching applications.

FEATURES

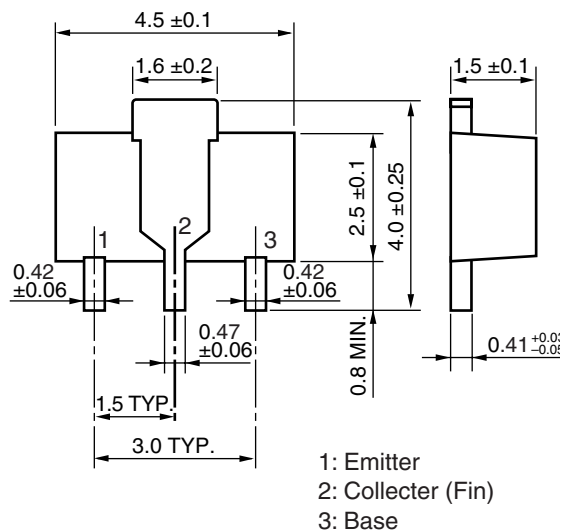
- High speed, high voltage switching
- Low collector saturation voltage
- Complementary to the 2SA1460 PNP transistor.

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

Collector to Base Voltage	V_{CBO}	80	V
Collector to Emitter Voltage	V_{CEO}	45	V
Emitter to Base Voltage	V_{EBO}	5.0	V
Collector Current (DC)	$I_{C(DC)}$	1.0	A
Collector Current (pulse) ^{Note1}	$I_{C(pulse)}$	2.0	A
Total Power Dissipation ^{Note2}	P_T	2.0	W
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

Notes 1. $PW \leq 10$ ms, Duty Cycle $\leq 50\%$

2. Mounted on ceramic substrate of $16\text{ cm}^2 \times 0.7\text{ mm}$

★ PACKAGE DRAWING (Unit: mm)

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ELECTRICAL CHARACTERISTICS (T_A = 25°C)

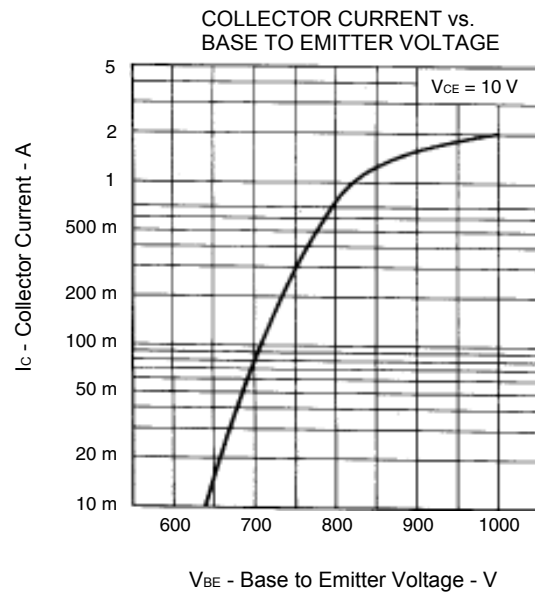
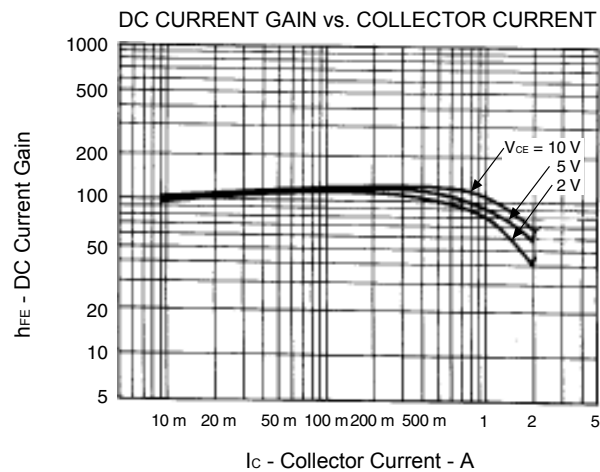
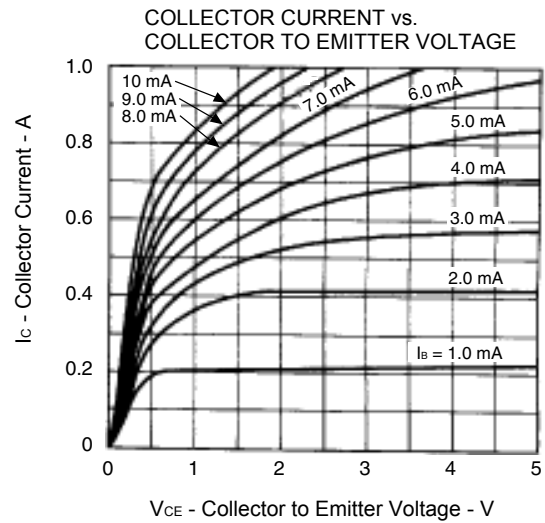
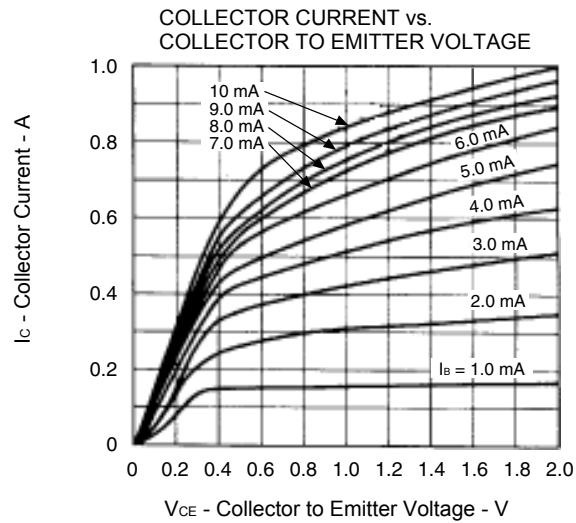
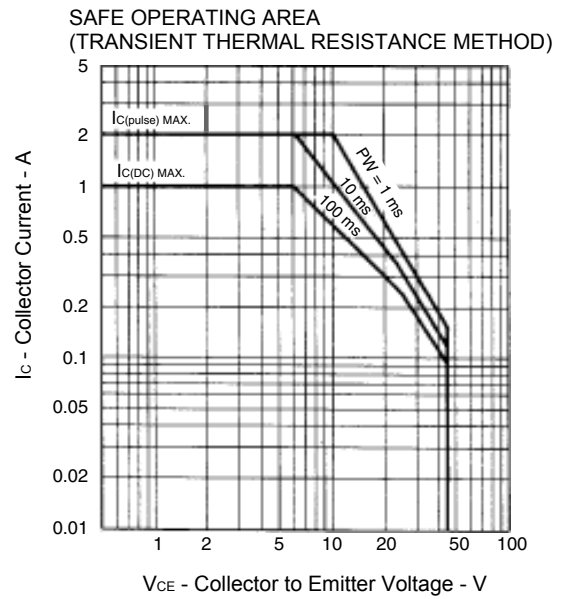
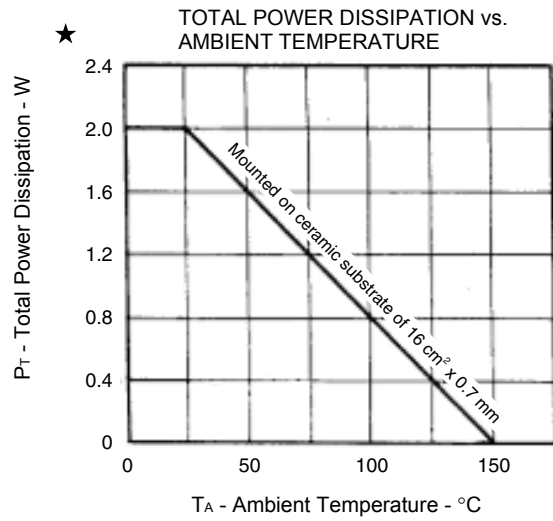
CHARACTERISTICS	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I _{CES}	V _{CE} = 45 V, R _{BE} = 0 Ω			0.5	μA
Emitter Cut-off Current	I _{EBO}	V _{EB} = 4.0 V, I _C = 0 A			0.5	μA
★ DC Current Gain ^{Note}	h _{FE1}	V _{CE} = 10 V, I _C = 50 mA	60		200	
	h _{FE2}	V _{CE} = 10 V, I _C = 500 mA	60			
Collector Saturation Voltage ^{Note}	V _{CE(sat)}	I _C = 500 mA, I _B = 50 mA		0.17	0.4	V
Base Saturation Voltage ^{Note}	V _{BE(sat)}			0.90	1.2	V
Gain Bandwidth Product	f _T	V _{CE} = 10 V, I _E = -100 mA	300	380		MHz
Output Capacitance	C _{ob}	V _{CB} = 10 V, I _E = 0, f = 1.0 MHz		6.7	10	pF
Turn-on Time	t _{on}	I _C = 500 mA, I _{B1} = -I _{B2} ≒ 50 mA		20	40	ns
Storage Time	t _{stg}			55	80	ns
Turn-off Time	t _{off}			72	100	ns

Note Pulsed: PW ≤ 350 μs, Duty Cycle ≤ 2%

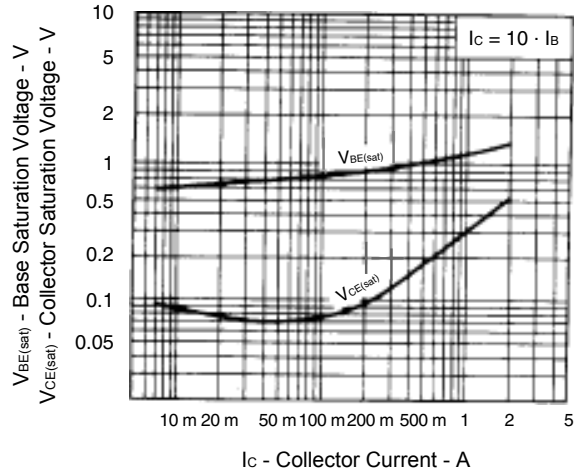
h_{FE} CLASSIFICATION

MARKING	OL	OK
h _{FE1}	60 to 120	100 to 200

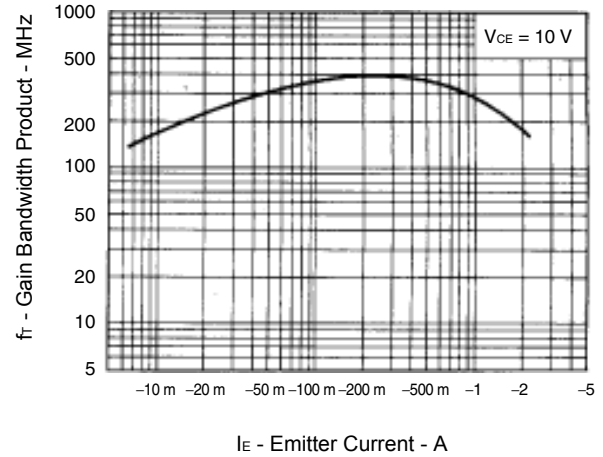
TYPICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$)



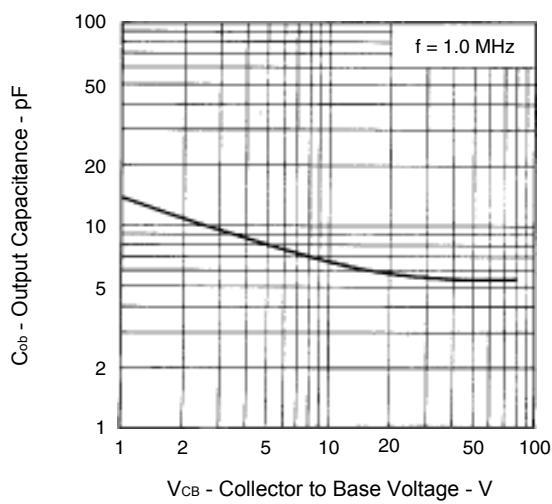
BASE AND COLLECTOR SATURATION VOLTAGE vs. COLLECTOR CURRENT



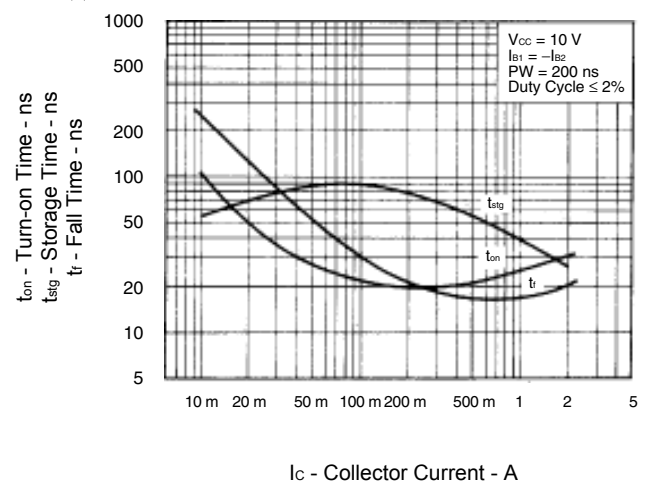
GAIN BANDWIDTH PRODUCT vs. EMITTER CURRENT



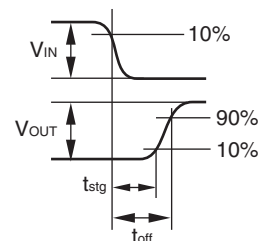
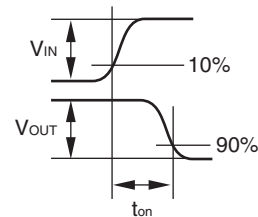
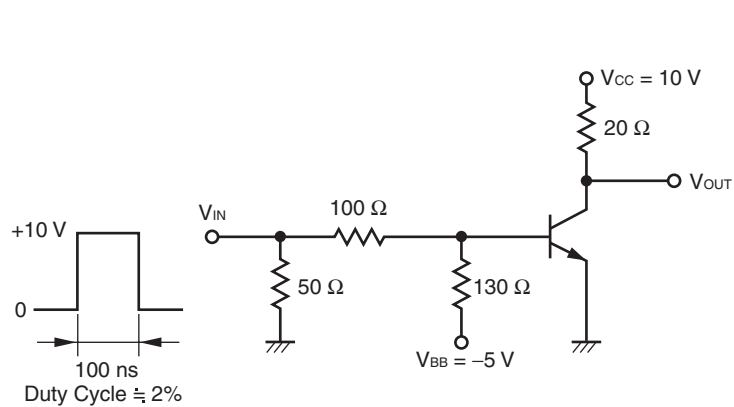
OUTPUT CAPACITANCE vs. REVERSE VOLTAGE



SWITCHING TIME vs. COLLECTOR CURRENT



SWITCHING TIME TEST CIRCUIT



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