

NEC

NPN SILICON POWER TRANSISTOR

2SC2752

DESCRIPTION The 2SC2752 is suitable for Low Power Switching regulator, DC-DC converter and High Voltage Switch.

- FEATURES**
- High Breakdown Voltage.
 - Low Collector Saturation Voltage.
 - High Speed Switching.
 - Complementary to the NEC 2SA1156 PNP Transistor.

ABSOLUTE MAXIMUM RATINGS

Maximum Temperatures

Storage Temperature	.....	-55 to +150 °C
Junction Temperature	.....	+150 °C Maximum

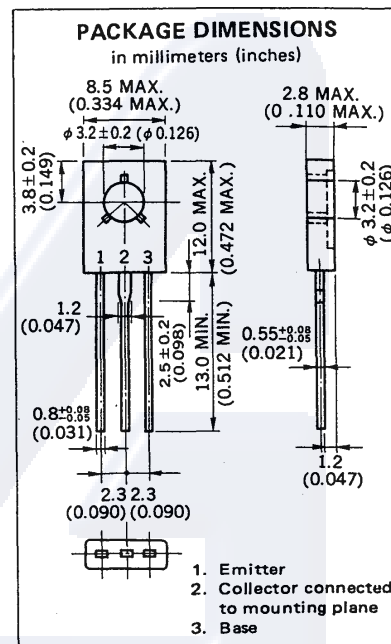
Maximum Power Dissipations

Total Power Dissipation ($T_a = 25^\circ\text{C}$)	.....	1.0 W
Total Power Dissipation ($T_c = 25^\circ\text{C}$)	.....	10 W

Maximum Voltages and Currents ($T_a = 25^\circ\text{C}$)

V_{CB0}	Collector to Base Voltage	.....	500 V
V_{CEO}	Collector to Emitter Voltage	.....	400 V
V_{EBO}	Emitter to Base Voltage	.....	7.0 V
$I_{C(DC)}$	Collector Current	.....	0.5 A
$I_{C(pulse)}^*$	Collector Current	.....	1.0 A
$I_{B(DC)}$	Base Current	.....	0.25 A

* PW ≤ 10 ms, Duty Cycle $\leq 50\%$



NEC**2SC2752****ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)**

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
h_{FE1}^*	DC Current Gain	20		80	—	$V_{CE} = 5.0\text{ V}$, $I_C = 0.05\text{ A}$
h_{FE2}^*	DC Current Gain	10			—	$V_{CE} = 5.0\text{ V}$, $I_C = 0.3\text{ A}$
t_{on}	Turn On Time			1.0	μs	$I_C = 0.3\text{ A}$, $I_{B1} = -I_{B2} = 0.06\text{ A}$, $PW \approx 50\text{ }\mu\text{s}$ $R_L = 500\text{ }\Omega$, $V_{CC} \approx 150\text{ V}$
t_{stg}	Storage Time			2.5	μs	
t_f	Fall Time			1.0	μs	
$V_{ECO(sus)}$	Collector to Emitter Sustaining Voltage	400			V	Table 1, $I_C = 0.3\text{ A}$, $I_{B1} = 0.06\text{ A}$, $L = 10\text{ mH}$
$V_{CEX(sus)1}$	Collector to Emitter Sustaining Voltage	450			V	Table 1, $I_C = 0.3\text{ A}$, $I_{B1} = -I_{B2} = 0.06\text{ A}$ $V_{clamp} = \text{Rated } V_{CEX}$, $T_a = 125^\circ\text{C}$, $L = 10\text{ mH}$
$V_{CEX(sus)2}$	Collector to Emitter Sustaining Voltage	400			V	Table 1, $I_C = 0.6\text{ A}$, $I_{B1} = 0.2\text{ A}$, $I_{B2} = -0.06\text{ A}$ $V_{clamp} = \text{Rated } V_{CEX}$, $T_a = 125^\circ\text{C}$, $L = 10\text{ mH}$
I_{CER}	Collector Cutoff Current			1.0	mA	$V_{CE} = 400\text{ V}$, $R_{BE} = 51\text{ }\Omega$, $T_a = 125^\circ\text{C}$
I_{CEX1}	Collector Cutoff Current			10	μA	$V_{CE} = 400\text{ V}$, $V_{BE(OFF)} = -1.5\text{ V}$
I_{CEX2}	Collector Cutoff Current			1.0	mA	$V_{CE} = 400\text{ V}$, $V_{BE(OFF)} = -1.5\text{ V}$, $T_a = 125^\circ\text{C}$
I_{EBO}	Emitter Cutoff Current			10	μA	$V_{EB} = 5.0\text{ V}$, $I_C = 0$
$V_{CE(sat)}^*$	Collector Saturation Voltage			1.0	V	$I_C = 0.3\text{ A}$, $I_B = 0.06\text{ A}$
$V_{BE(sat)}^*$	Base Saturation Voltage			1.2	V	$I_C = 0.3\text{ A}$, $I_B = 0.06\text{ A}$

* Pulsed / $PW \leq 350\text{ }\mu\text{s}$, Duty Cycle $\leq 2\%$ Classification of h_{FE1}

Rank	M	L	K
Range	20 to 40	30 to 60	40 to 80

Test Conditions: $V_{CE} = 5.0\text{ V}$, $I_C = 0.05\text{ A}$ *Electrónica S.A. de C.V.*

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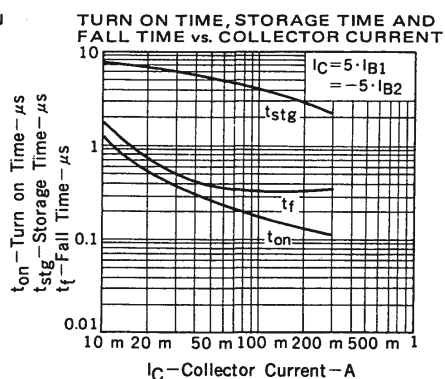
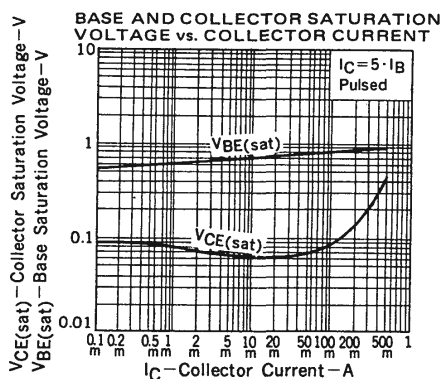
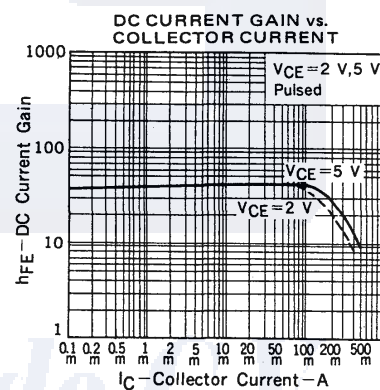
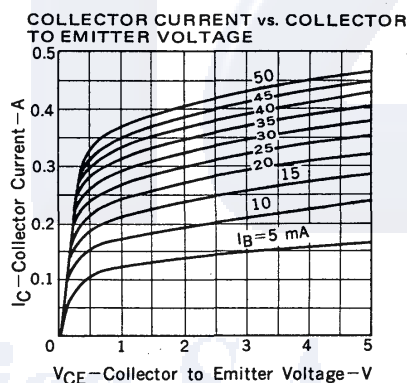
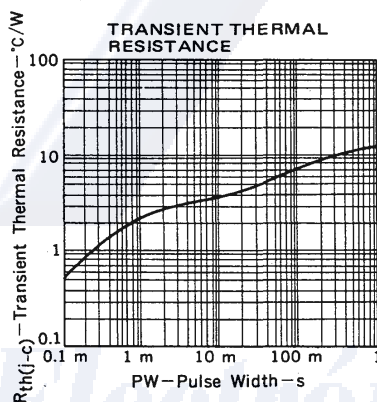
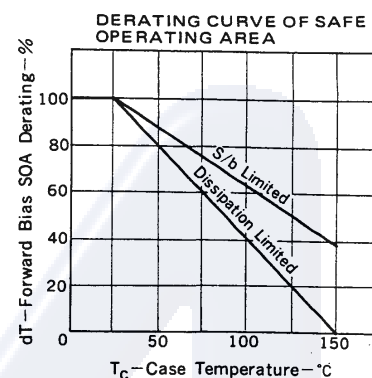
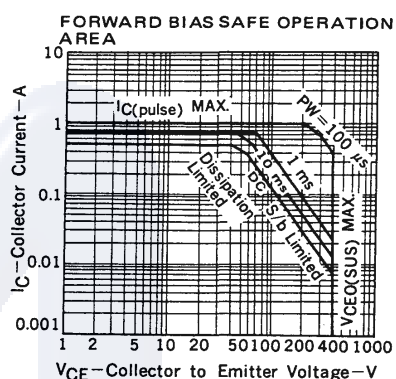
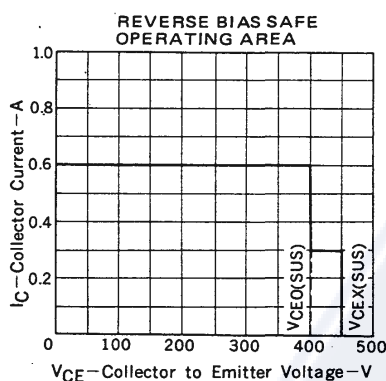
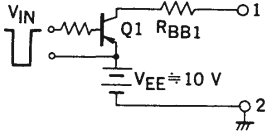
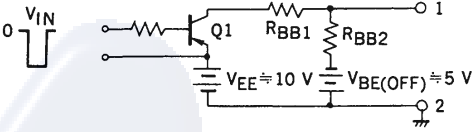
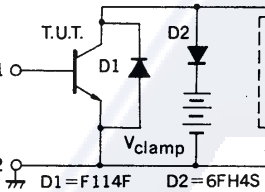
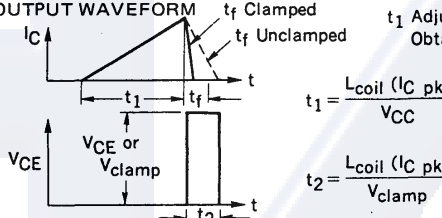
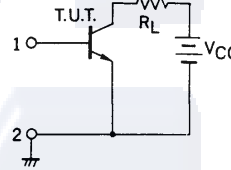
TYPICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

TABLE 1. — TEST CONDITIONS FOR DYNAMIC PERFORMANCE

	V _{CEO} (SUS)	V _{CEX} (SUS)	RESISTIVE SWITCHING
INPUT CONDITIONS	 PW Varied to Attain I_C = 10 A	 PW Varied to Attain I_C = 10 A Duty Cycle ≤ 2 % Q₁ = 2SA959	
CIRCUIT VALUES	L _{coil} = 10 mH, V _{CC} = 10 V R _{coil} ≤ 0.5 Ω V _{clamp} (Unclamped)	L _{coil} = 10 mH, V _{CC} = 20 V R _{coil} ≤ 0.5 Ω V _{clamp} = Rated V _{CEX} Value	R _L = 500 Ω, V _{CC} ≈ 150 V
TEST CIRCUITS	 INDUCTIVE TEST CIRCUIT	 OUTPUT WAVEFORM $t_1 = \frac{L_{coil} (I_C \text{ pk})}{V_{CC}}$ $t_2 = \frac{L_{coil} (I_C \text{ pk})}{V_{clamp}}$	 RESISTIVE TEST CIRCUIT

Electrónica S.A. de C.V.

This datasheet has been download from:

www.datasheetcatalog.com

Datasheets for electronics components.



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