

DESCRIPTION The 2SC2518 is NPN triple diffused transistor designed for switching regulator, DC-DC converter and ultrasonic appliance applications.

- FEATURES**
- High speed, high voltage switching.
 - Low collector saturation voltage.
 - Specified of reverse biased SOA with inductive loads.

ABSOLUTE MAXIMUM RATINGS

Maximum Temperatures

Storage Temperature -55 to +150 °C

Junction Temperature 150 °C Maximum

Maximum Power Dissipation ($T_c = 25^\circ\text{C}$)

Total Power Dissipation 40 W

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

V_{CB0} Collector to Base Voltage 500 V

V_{CE0} Collector to Emitter Voltage 400 V

V_{EB0} Emitter to Base Voltage 8.0 V

$I_C(\text{DC})$ Collector Current (DC) 5.0 A

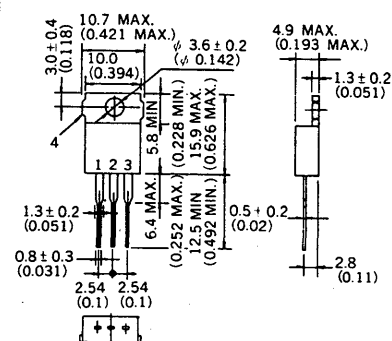
$I_C(\text{pulse})$ Collector Current (pulse)* 10 A

$I_B(\text{DC})$ Base Current (DC) 2.5 A

* $PW \leq 300 \mu\text{s}$, Duty Cycle $\leq 10\%$

PACKAGE DIMENSIONS

in millimeters (inches)



1. Base (B)
 2. Collector (C)
 3. Emitter (E)
 4. Fin (Collector)
- JEDEC: TO-220AB

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

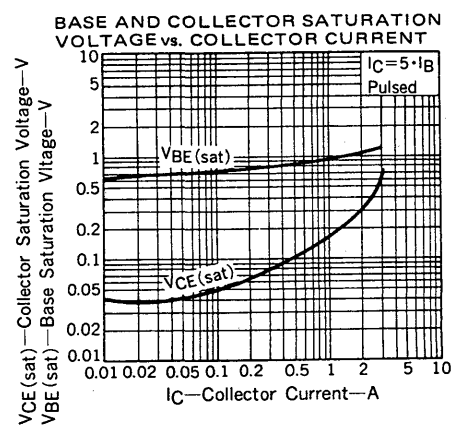
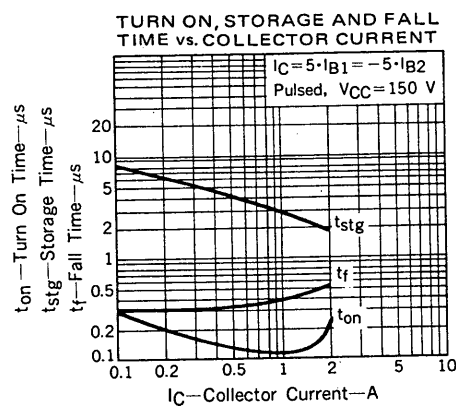
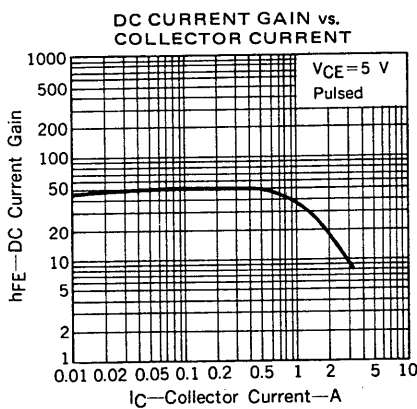
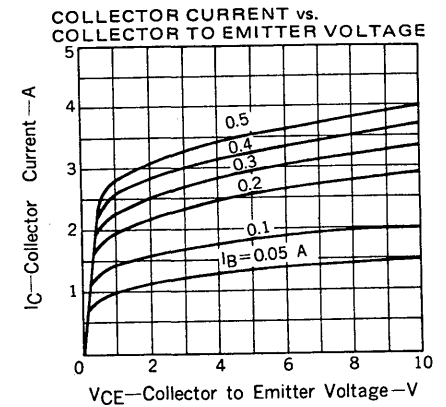
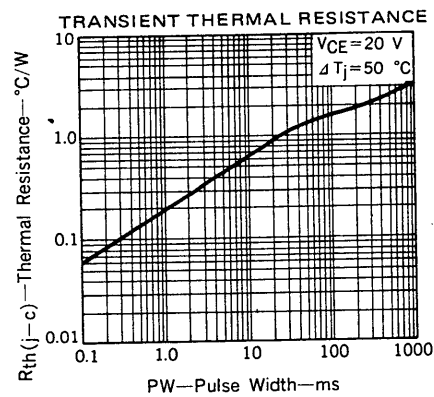
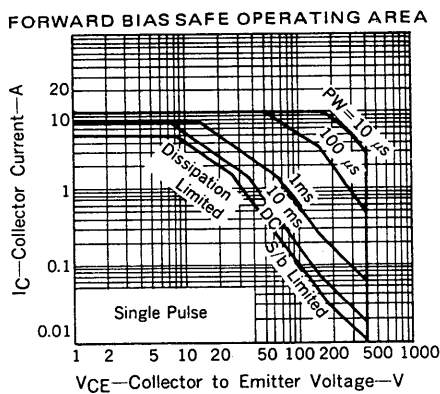
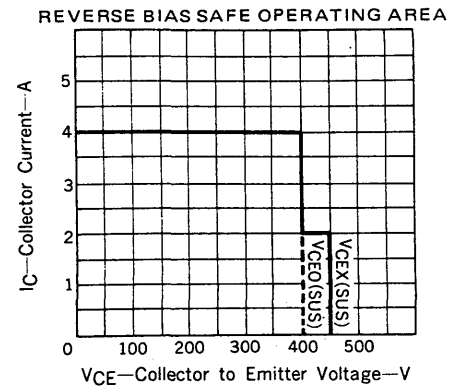
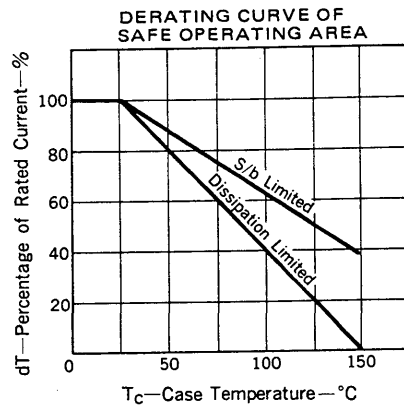
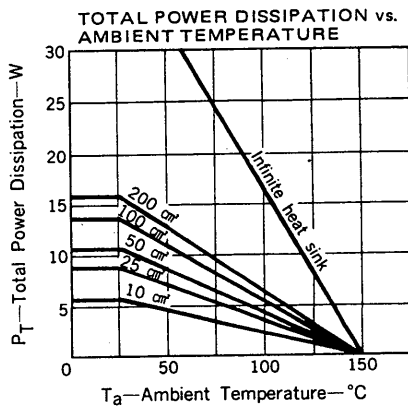
SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
t_{on}	Turn On Time			1.0	μs	$I_C = 2.0 \text{ A}$, $I_{B1} = -I_{B2} = 0.4 \text{ A}$ $R_L = 75 \Omega$, $V_{CC} = 150 \text{ V}$ See Test Circuit.
t_{stg}	Storage Time			2.5	μs	
t_f	Fall Time			0.7	μs	
h_{FE1}	DC Current Gain**	20		80	—	$V_{CE} = 5.0 \text{ V}$, $I_C = 0.5 \text{ A}$
h_{FE2}	DC Current Gain**	10			—	$V_{CE} = 5.0 \text{ V}$, $I_C = 2.0 \text{ A}$
$V_{CE(sat)}$	Collector Saturation Voltage**			1.0	V	$I_C = 2.0 \text{ A}$, $I_B = 0.4 \text{ A}$
$V_{BE(sat)}$	Base Saturation Voltage**			1.5	V	$I_C = 2.0 \text{ A}$, $I_B = 0.4 \text{ A}$
$V_{CE0(SUS)}$	Collector to Emitter Sustaining Voltage	400			V	$I_C = 2.0 \text{ A}$, $I_B = 0.4 \text{ A}$, $L = 1 \text{ mH}$
$V_{CEX(SUS)1}$	Collector to Emitter Sustaining Voltage	450			V	$I_C = 2.0 \text{ A}$, $I_{B1} = -I_{B2} = 0.4 \text{ A}$, $T_a = 125^\circ\text{C}$, $L = 180 \mu\text{H}$, Clamped
$V_{CEX(SUS)2}$	Collector to Emitter Sustaining Voltage	400			V	$I_C = 4.0 \text{ A}$, $I_{B1} = 0.8 \text{ A}$, $-I_{B2} = 0.4 \text{ A}$, $T_a = 125^\circ\text{C}$, $L = 180 \mu\text{H}$, Clamped
I_{CBO}	Collector Cutoff Current			10	μA	$V_{CB} = 400 \text{ V}$, $I_E = 0$
I_{CER}	Collector Cutoff Current			1.0	mA	$V_{CE} = 400 \text{ V}$, $R_{BE} = 51 \Omega$, $T_a = 125^\circ\text{C}$
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	$V_{EB} = 5.0 \text{ V}$, $I_C = 0$

**Pulse Test : $PW \leq 350 \mu\text{s}$, Duty Cycle $\leq 2\%$ /Pulsed

Classification of h_{FE1}

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

Test Conditions : $V_{CE} = 5.0 \text{ V}$, $I_C = 0.5 \text{ A}$

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

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

