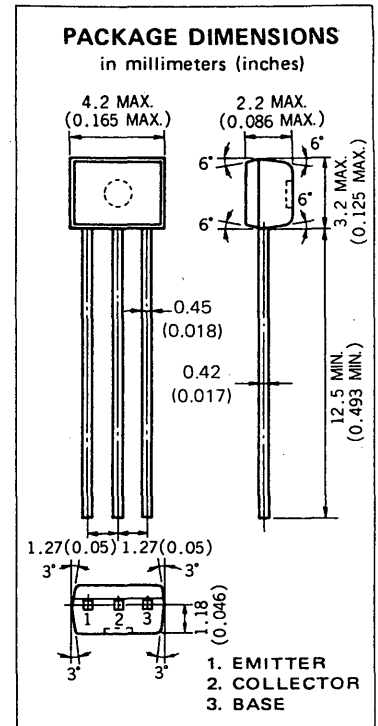


DESCRIPTION The 2SA1459 is designed for general purpose amplifier and high speed switching applications.

- FEATURES**
- High Frequency Current Gain.
 - High Speed Switching.
 - Small Output Capacitance.
 - Low Collector Saturation Voltage.

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

- Maximum Temperatures
- Storage Temperature -55 to $+150^\circ\text{C}$
 - Junction Temperature 150°C Maximum
- Maximum Power Dissipation ($T_a = 25^\circ\text{C}$)
- Total Power Dissipation 250 mW
- Maximum Voltages and Currents ($T_a = 25^\circ\text{C}$)
- V_{CBO} Collector to Base Voltage -15 V
 - V_{CEO} Collector to Emitter Voltage -15 V
 - V_{EBO} Emitter to Base Voltage -4.5 V
 - I_C Collector Current (DC) -50 mA
 - I_C Collector Current (Pulse)* -100 mA
- * $PW \leq 2$ ms, Duty Cycle ≤ 50 %



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

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
t_{on}	Turn-on Time		9.0	20	ns	See Test Circuit.
t_{off}	Turn-off Time		19	40	ns	See Test Circuit.
t_{stg}	Storage Time		16	40	ns	See Test Circuit.
f_T	Gain Bandwidth Product	800	1800		MHz	$V_{CE} = -10$ V, $I_E = 10$ mA, $f = 100$ MHz
C_{ob}	Output Capacitance		2.0	3.0	pF	$V_{CB} = -5.0$ V, $I_E = 0$, $f = 1$ MHz
h_{FE1}^{**}	DC Current Gain	50	80	150	—	$V_{CE} = -1.0$ V, $I_C = -10$ mA
h_{FE2}^{**}	DC Current Gain	30	70		—	$V_{CE} = -1.0$ V, $I_C = -1.0$ mA
$V_{CE(sat)}^{**}$	Collector Saturation Voltage		-0.09	-0.20	V	$I_C = -10$ mA, $I_B = -1.0$ mA
$V_{BE(sat)}^{**}$	Base Saturation Voltage		-0.80	-0.95	V	$I_C = -10$ mA, $I_B = -1.0$ mA
I_{CBO}	Collector Cutoff Current			-0.1	μA	$V_{CB} = -8.0$ V, $I_E = 0$
I_{EBO}	Emitter Cutoff Current			-0.1	μA	$V_{EB} = -3.0$ V, $I_C = 0$

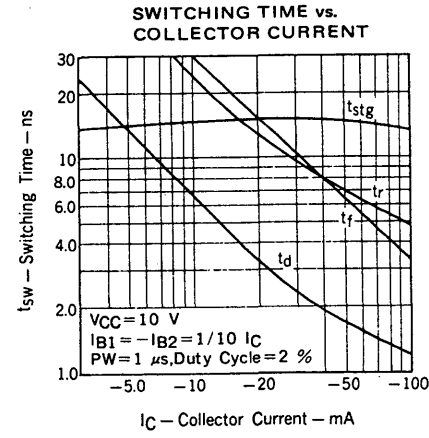
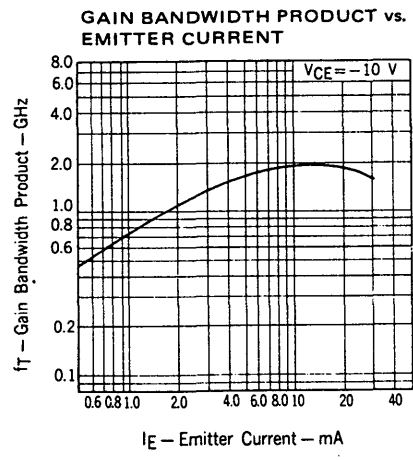
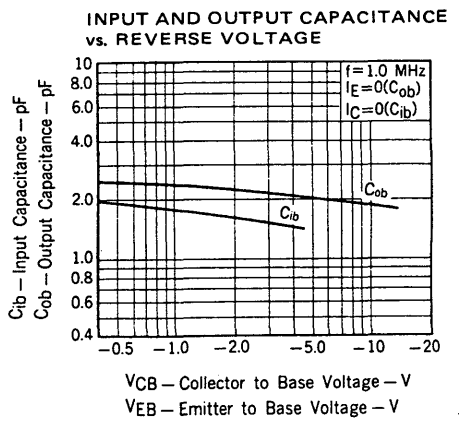
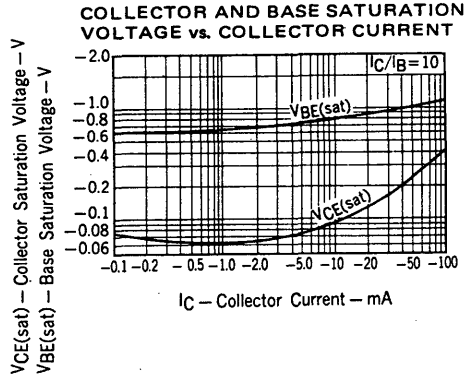
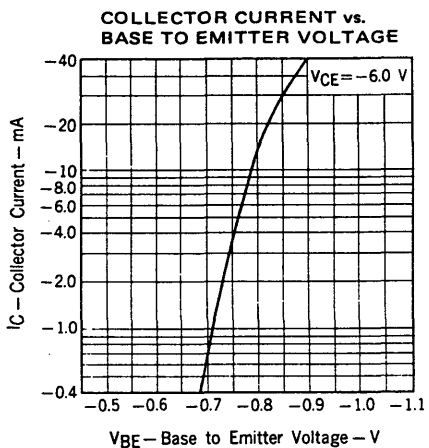
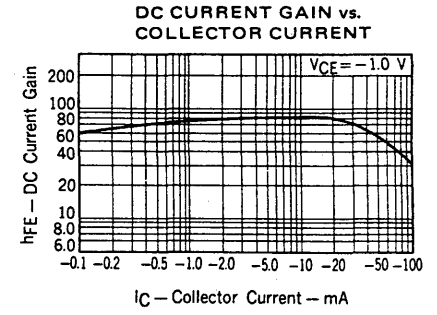
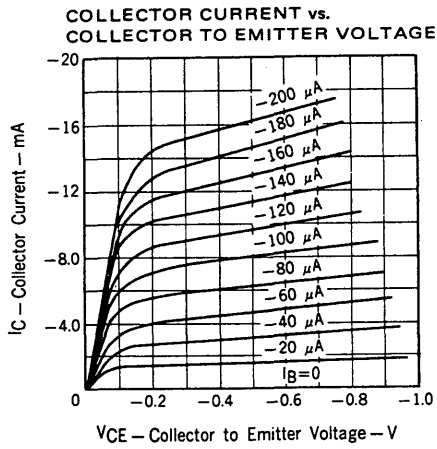
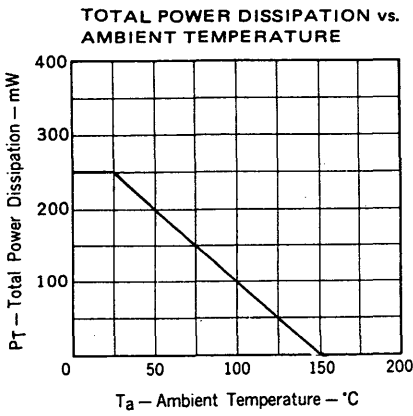
** Pulsed $PW \leq 350 \mu\text{s}$, Duty Cycle ≤ 2 %

Classification of h_{FE1}

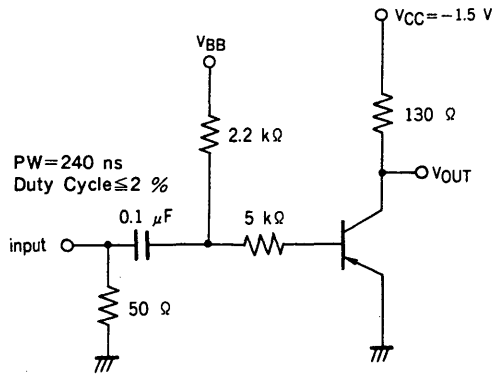
Rank	L	K
Range	50 to 100	75 to 150

h_{FE2} Test Conditions: $V_{CE} = -1.0$ V, $I_C = -10$ mA

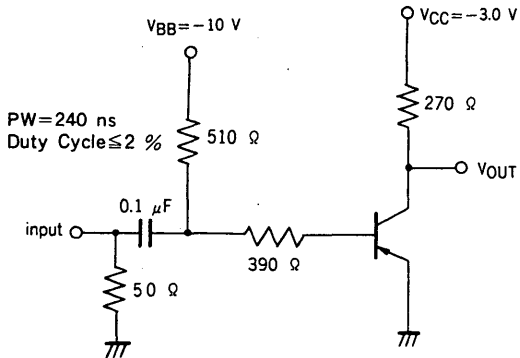
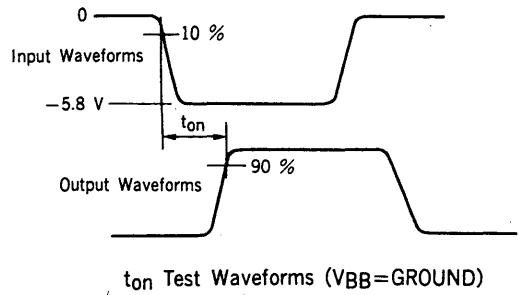
TYPICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)



SWITCHING TIME TEST CIRCUIT



ton, toff Test Circuit



tstg Test Circuit

