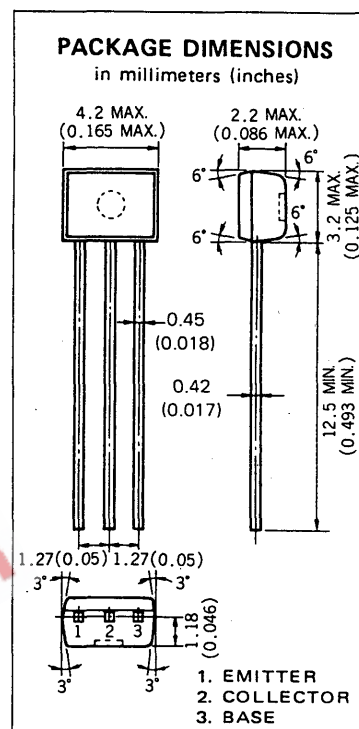


**DESCRIPTION** The 2SA1458 is designed for general purpose amplifier and high speed switching applications.

- FEATURES**
- High Frequency Current Gain.
  - High Speed Switching.
  - Small Output Capacitance.
  - Low Collector Saturation Voltage.
  - Complementary to the NEC 2SC3731 NPN transistor.

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

<b>Maximum Temperatures</b>	
Storage Temperature	-55 to +150 °C
Junction Temperature	150 °C Maximum
<b>Maximum Power Dissipation (<math>T_a = 25^\circ\text{C}</math>)</b>	
Total Power Dissipation	250 mW
<b>Maximum Voltages and Current (<math>T_a = 25^\circ\text{C}</math>)</b>	
$V_{CBO}$ Collector to Base Voltage	-40 V
$V_{CEO}$ Collector to Emitter Voltage	-40 V
$V_{EBO}$ Emitter to Base Voltage	-5.0 V
$I_C$ Collector Current (DC)	-200 mA



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

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
$t_{on}$	Turn-on Time			70	ns	See Test Circuit.
$t_{stg}$	Storage Time		110	225	ns	See Test Circuit.
$t_{off}$	Turn-off Time			300	ns	See Test Circuit.
$f_T$	Gain Bandwidth Product	200	510		MHz	$V_{CE} = -20\text{ V}$ , $I_E = 10\text{ mA}$ , $f = 100\text{ MHz}$
$C_{ob}$	Output Capacitance		2.5	4.5	pF	$V_{CB} = -5.0\text{ V}$ , $I_E = 0$ , $f = 1\text{ MHz}$
$h_{FE1}^*$	DC Current Gain	75	180	300	-	$V_{CE} = -1.0\text{ V}$ , $I_C = -100\text{ mA}$
$h_{FE2}^*$	DC Current Gain	25	100		-	$V_{CE} = -1.0\text{ V}$ , $I_C = -1.0\text{ mA}$
$V_{CE(sat)}^*$	Collector Saturation Voltage		-0.1	-0.4	V	$I_C = -50\text{ mA}$ , $I_B = -5.0\text{ mA}$
$V_{BE(sat)}^*$	Base Saturation Voltage		-0.80	-0.95	V	$I_C = -50\text{ mA}$ , $I_B = -5.0\text{ mA}$
$I_{CBO}$	Collector Cutoff Current			-0.1	$\mu\text{A}$	$V_{CB} = -30\text{ V}$ , $I_E = 0$
$I_{EBO}$	Emitter Cutoff Current			-0.1	$\mu\text{A}$	$V_{EB} = -3.0\text{ V}$ , $I_C = 0$

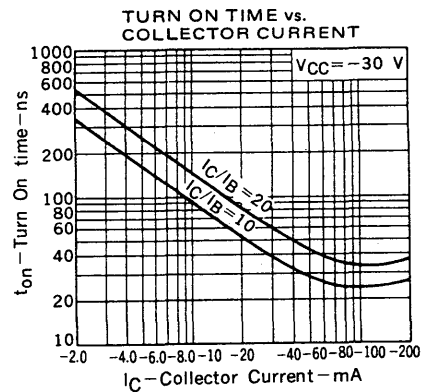
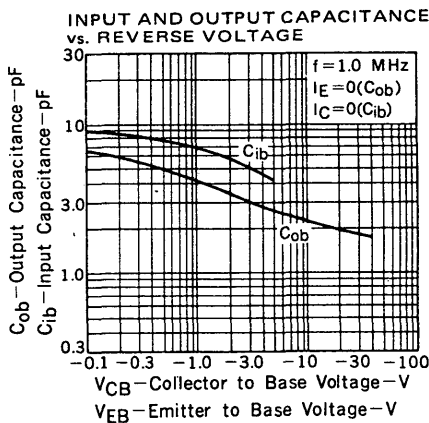
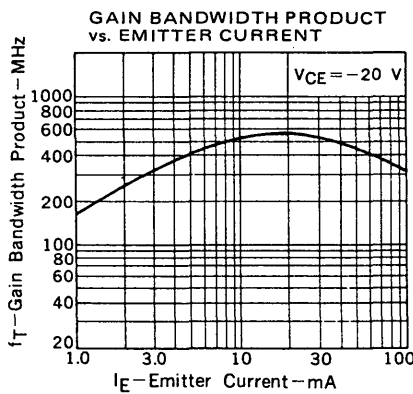
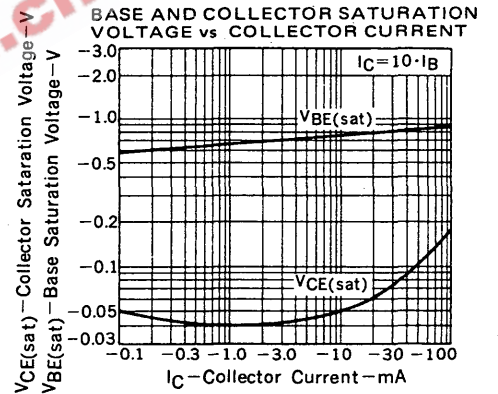
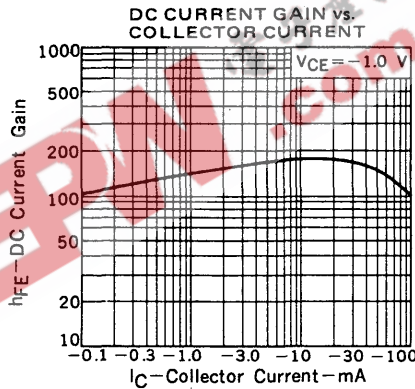
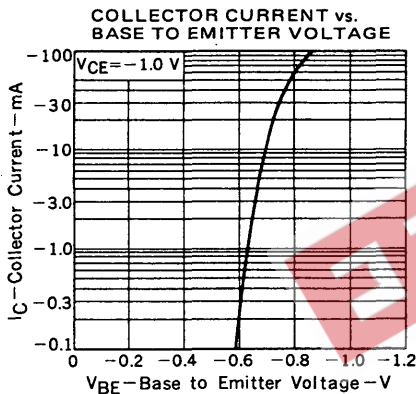
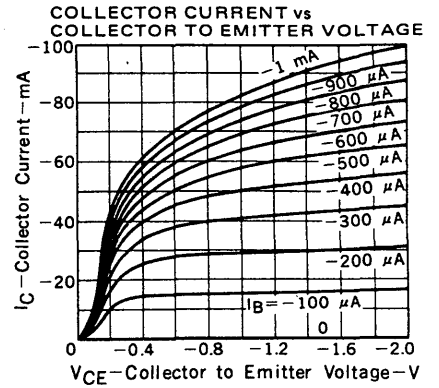
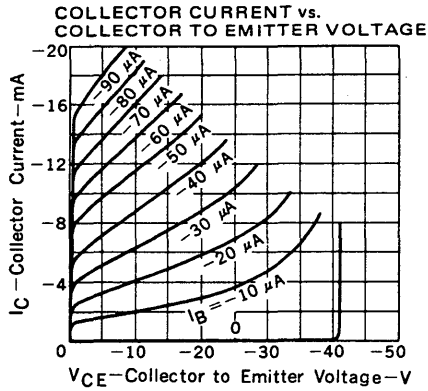
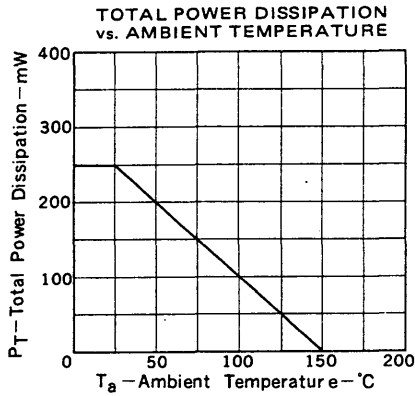
\* Pulsed PW  $\leq 350\ \mu\text{s}$ , Duty Cycle  $\leq 2\%$

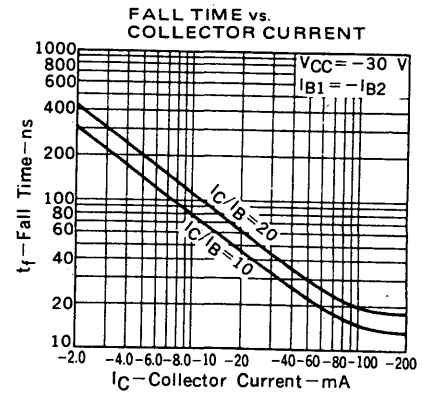
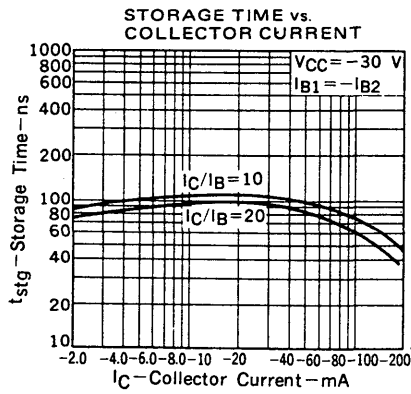
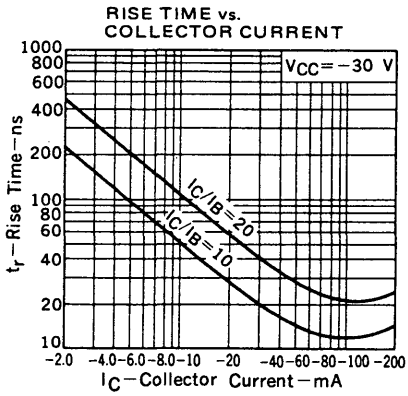
**Classification of  $h_{FE1}$**

Rank	M	L	K
Range	75 to 150	100 to 200	150 to 300

$h_{FE1}$  Test Conditions :  $V_{CE} = -1.0\text{ V}$ ,  $I_C = -100\text{ mA}$

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





**SWITCHING TIME TEST CIRCUIT**

