

**DESCRIPTION** The 2SA916 is designed for use in driver stages of audio frequency amplifiers.

- FEATURES**
- High Total Power Dissipation and High Breakdown Voltage: 1.0 W at 25 °C Ambient Temperature  $V_{CEO} = -160$  V
  - Complementary to the NEC 2SC1941 NPN Transistor.

**ABSOLUTE MAXIMUM RATINGS**

Maximum Temperatures

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

Junction Temperature ..... +150 °C Maximum

Maximum Power Dissipation ( $T_a = 25$  °C)

Total Power Dissipation ..... 1.0 W

Thermal Resistance(Junction to Ambient) . . . .125 °C/W

Maximum Voltages and Currents ( $T_a = 25$  °C)

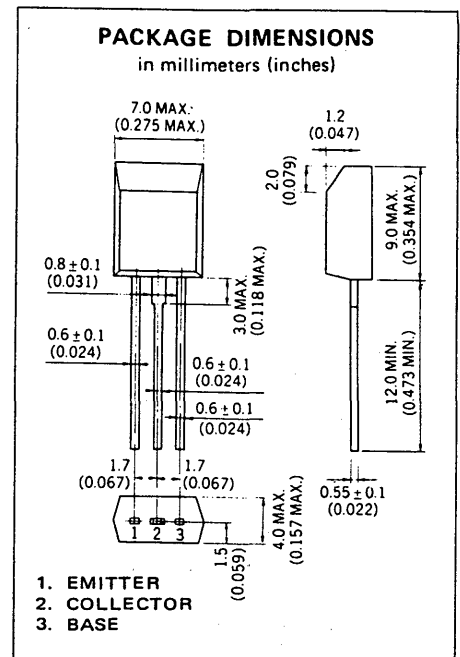
$V_{CBO}$  Collector to Base Voltage ..... -160 V

$V_{CEO}$  Collector to Emitter Voltage ..... -160 V

$V_{EBO}$  Emitter to Base Voltage ..... -5.0 V

$I_C$  Collector Current ..... -50 mA

$I_B$  Base Current ..... -10 mA



**ELECTRICAL CHARACTERISTICS ( $T_a = 25$  °C)**

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
$h_{FE1}$	DC Current Gain	90	200	400	-	$V_{CE} = -10$ V, $I_C = -10$ mA
$h_{FE2}$	DC Current Gain	50	200		-	$V_{CE} = -10$ V, $I_C = -1.0$ mA
$f_T$	Gain Bandwidth Product	50	80		MHz	$V_{CE} = -10$ V, $I_E = 10$ mA
$C_{ob}$	Output Capacitance		2.5	3.5	pF	$V_{CB} = -10$ V, $I_E = 0$ , $f = 1.0$ MHz
$I_{CBO}$	Collector Cutoff Current			-100	nA	$V_{CB} = -160$ V, $I_E = 0$
$I_{EBO}$	Emitter Cutoff Current			-100	nA	$V_{EB} = -5.0$ V, $I_C = 0$
$V_{BE}$	Base to Emitter Voltage	-650	-695	-750	mV	$V_{CE} = -10$ V, $I_C = -10$ mA
$V_{CE(sat)}$	Collector Saturation Voltage		-0.18	-0.6	V	$I_C = -20$ mA, $I_B = -2.0$ mA
$V_{BE(sat)}$	Base Saturation Voltage		-0.79	-1.0	V	$I_C = -20$ mA, $I_B = -2.0$ mA

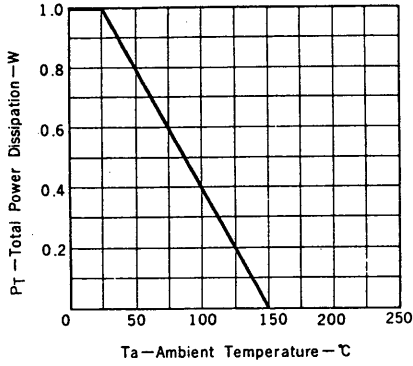
**Classification of  $h_{FE1}$**

Rank	M	L	K
Range	90 - 180	135 - 270	200 - 400

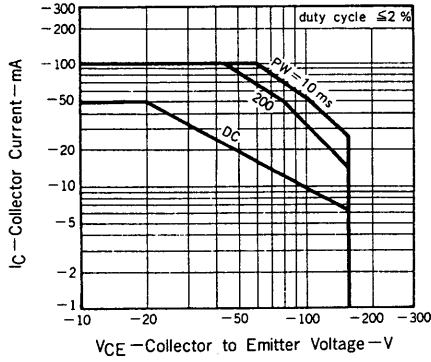
$h_{FE1}$  Test Conditions:  $V_{CE} = -10$  V,  $I_C = -10$  mA

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

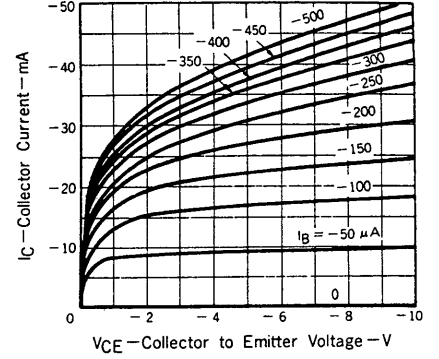
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



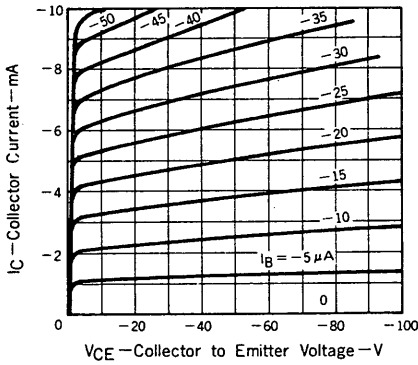
SAFE OPERATING AREAS (TRANSIENT THERMAL RESISTANCE METHOD)



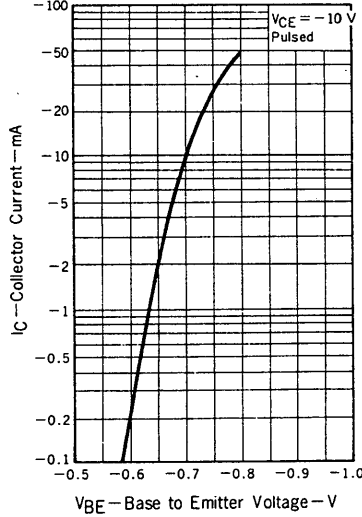
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



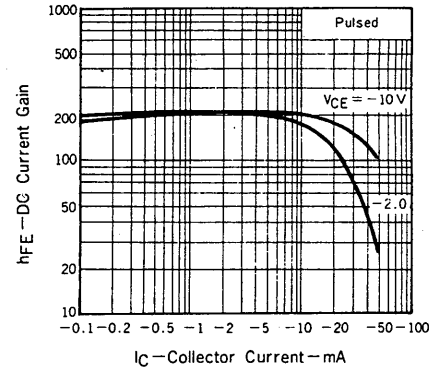
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



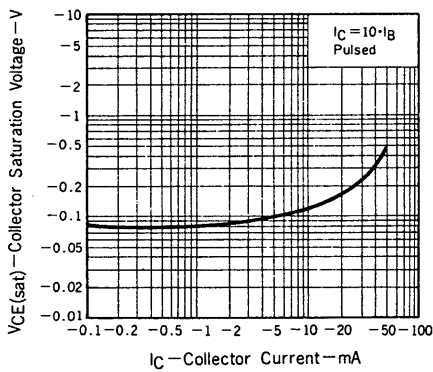
COLLECTOR CURRENT vs. BASE TO EMITTER VOLTAGE



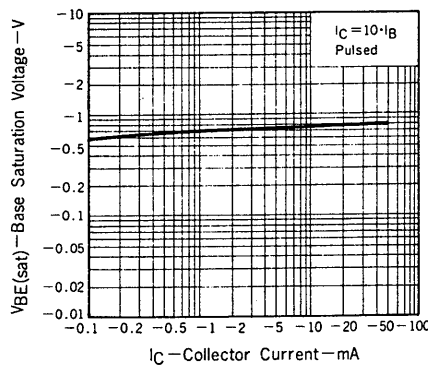
DC CURRENT GAIN vs. COLLECTOR CURRENT



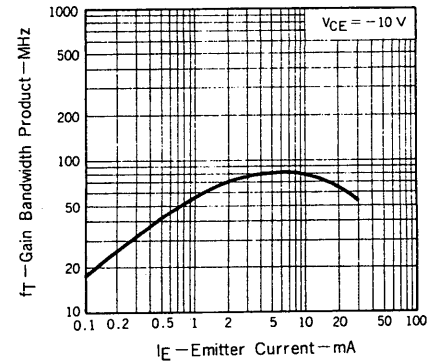
COLLECTOR SATURATION VOLTAGE vs. COLLECTOR CURRENT



BASE SATURATION VOLTAGE vs. COLLECTOR CURRENT



GAIN BANDWIDTH PRODUCT vs. EMITTER CURRENT



INPUT AND OUTPUT CAPACITANCE  
vs. REVERSE VOLTAGE

