

DESCRIPTION The 2SC3616 is designed for general-purpose applications requiring High DC Current Gain. This is suitable for all kind of driving, instead of Darlington Transistor, or muting.

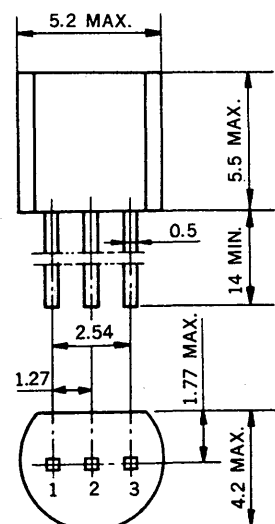
- FEATURES**
- High DC Current Gain.
 $h_{FE} = 800$ to 3200 (@ $V_{CE} = 2.0$ V, $I_C = 300$ mA)
 - Low Collector Saturation Voltage.
 $V_{CE(sat)} = 0.14$ V TYP. (@ $I_C/I_B = 300$ mA/3.0 mA)
 - High V_{EBO} : $V_{EBO} = 15$ V
 - Large Current : $I_C(DC) = 700$ mA, $I_C(pulse) = 1.0$ A
 - High Total Power Dissipation. : $P_T = 0.75$ W ($T_a = 25^\circ\text{C}$)

ABSOLUTE MAXIMUM RATINGS

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 0.75 W
 Maximum Voltages and Currents ($T_a = 25^\circ\text{C}$)
 V_{CBO} Collector to Base Voltage 25 V
 V_{CEO} Collector to Emitter Voltage 25 V
 V_{EBO} Emitter to Base Voltage 15 V
 I_C Collector Current (DC) 700 mA
 I_C Collector Current (pulse)* 1.0 A
 *PW ≤ 10 ms, Duty Cycle $\leq 50\%$

PACKAGE DIMENSIONS

in millimeters (inches)



1. Emitter EIAJ : SC-43B
 2. Collector JEDEC : TO-92
 3. Base IEC : PA33

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

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
h_{FE1}^{**}	DC Current Gain	800		3200	—	$V_{CE} = 2.0$ V, $I_C = 300$ mA
h_{FE2}^{**}	DC Current Gain	640			—	$V_{CE} = 2.0$ V, $I_C = 500$ mA
f_T	Gain Bandwidth Product	150	250		MHz	$V_{CE} = 5.0$ V, $I_E = -300$ mA
C_{ob}	Output Capacitance		10		pF	$V_{CB} = 10$ V, $I_E = 0$, $f = 1.0$ MHz
I_{CBO}	Collector Cutoff Current			100	nA	$V_{CB} = 25$ V, $I_E = 0$
I_{EBO}	Emitter Cutoff Current			100	nA	$V_{EB} = 10$ V, $I_C = 0$
V_{BE}^{**}	Base to Emitter Voltage	600		700	mV	$V_{CE} = 2.0$ V, $I_C = 50$ mA
$V_{CE(sat)}^{**}$	Collector Saturation Voltage		0.14	0.3	V	$I_C = 300$ mA, $I_B = 3.0$ mA
$V_{BE(sat)}^{**}$	Base Saturation Voltage		0.77	1.2	V	$I_C = 300$ mA, $I_B = 3.0$ mA
t_{on}	Turn-On Time		0.13		μs	$\left(\begin{array}{l} V_{CC} = 10 \text{ V, } V_{BE(off)} \div -2.7 \text{ V} \\ I_C = 200 \text{ mA} \\ I_{B1} = -I_{B2} = 4.0 \text{ mA} \end{array} \right)$
t_{stg}	Storage Time		0.90		μs	
t_{off}	Turn-Off Time		1.1		μs	

**Pulsed PW ≤ 350 μs , Duty Cycle $\leq 2\%$

Classification of h_{FE1}

Rank	M	L	K
Range	800 to 1600	1200 to 2400	2000 to 3200

Test Conditions: $V_{CE} = 2.0$ V, $I_C = 300$ mA

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