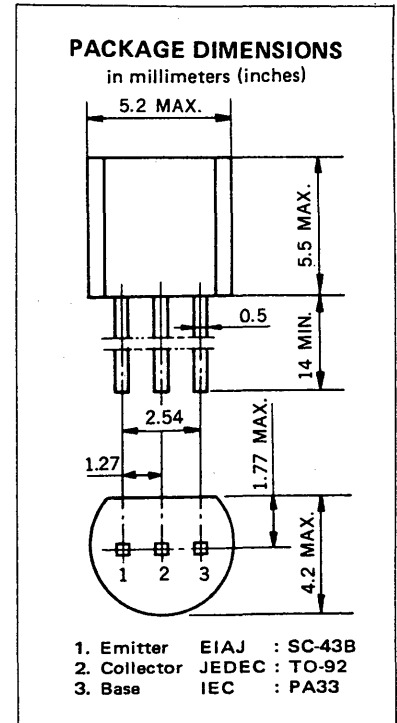


**DESCRIPTION** The 2SC3616 is designed for general-purpose applications requiring High DC Current Gain. This is suitable for all kind of driving, instead of Darlington Transistor, or muting.

- 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 ( $T_a = 25$  °C)

**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	..... 0.75 W
Maximum Voltages and Currents ( $T_a = 25$ °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 ≤ 50 %	



**ELECTRICAL CHARACTERISTICS ( $T_a = 25$  °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	$(V_{CC} = 10$ V, $V_{BE(off)} \doteq -2.7$ V) $I_C = 200$ mA $I_{B1} = -I_{B2} = 4.0$ mA
$t_{stg}$	Storage Time		0.90		μs	
$t_{off}$	Turn-Off Time		1.1		μs	

\*\*Pulsed PW ≤ 350 μs, Duty Cycle ≤ 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 ( $T_a = 25^\circ\text{C}$ )

