

RoHS
Compliant



Features

- This product is available in AEC-Q101 Qualified and PPAP Capable also.
- Transistors best suited for use in driver and output stages of audio amplifier

Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Collector-Emitter Voltage	V _{CEO}	45	V
Collector-Emitter Voltage	V _{CES}	50	
Emitter-Base Voltage	V _{EBO}	5	
Collector Current Continuous	I _C	800	mA
Peak	I _{CM}	1000	
Emitter Current Peak	I _{EM}	1000	
Base Current Continuous	I _B	100	
Base Current Peak	I _{BM}	200	
Power Dissipation at T _a = 25°C	P _{TA}	625	mW
Derate above 25°C		5	
Operating and Storage Junction Temperature Range	T _J , T _{STG}	-65 to +150	°C
Thermal Resistance			
From Junction to Ambient in Free Air	R _{th(j-a)}	200	°C / W

Electrical Characteristics (T_A = 25°C Unless Otherwise Specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-Emitter Voltage	V _{CEO} V _{CES}	I _C = 10mA, I _B = 0 I _C = 100mA, I _E = 0	45 50	-	-	V
Emitter-Base Voltage	V _{EBO}	I _E = 10mA, I _C = 0	5	-	-	
Collector-Cut off Current	I _{CBO}	V _{CB} = 20V, I _E = 0 V _{CB} = 20V, I _E = 0, T _J = 150°C	-	-	100 5	nA μA
Emitter Cut off Current	I _{EBO}	V _{EB} = 5V, I _C = 0	-	-	10	μA
Collector Emitter Saturation Voltage	V _{CE (SAT)} ¹	I _C =500mA, I _B =50mA	-	-	0.7	V
Base Emitter On Voltage	V _{BE (ON)} ¹	I _C =500mA, V _{CE} =1V	-	-	1.2	
DC Current Gain	h _{FE} *	I _C = 100mA, V _{CE} = 1V	100	-	600	-
		Group-10	63	-	160	
Group-16	100	-	250			
Group-25	160	-	400			
Group-40	250	-	600			
I _C =500mA, V _{CE} =1V	40	-	-			

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit	
Small Signal Characteristics							
Transistors Frequency	f_T	$I_C = 10\text{mA}$, $V_{CE} = 5\text{V}$, $f = 35\text{MHz}$	NPN	-	200	-	MHz
			PNP	-	100	-	
Output Capacitance	Cob	$V_{CB} = 10\text{V}$, $f = 1\text{MHz}$	NPN	-	5	-	pF
			PNP	-	5	-	

Note:

1. Pulse Condition: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$.
2. For PNP device voltage and current values will be negative (-).

Typical Characteristics Curves

Fig 1: Static Characteristic

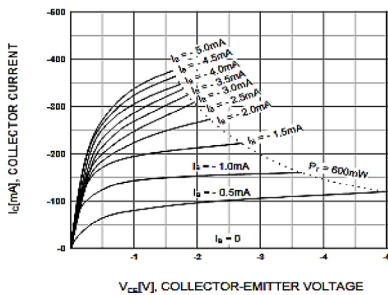


Fig 2: DC current Gain

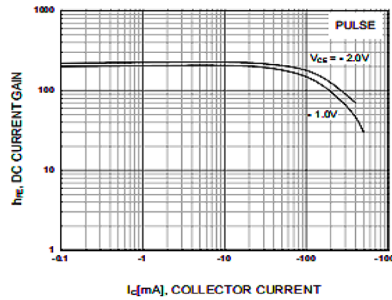


Fig 3: Base-Emitter On Voltage

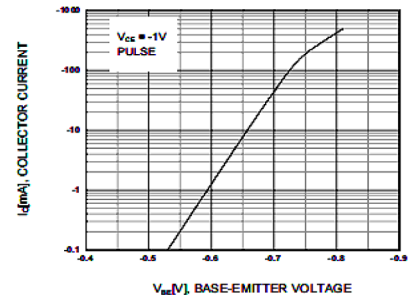


Fig 4: Static Characteristic

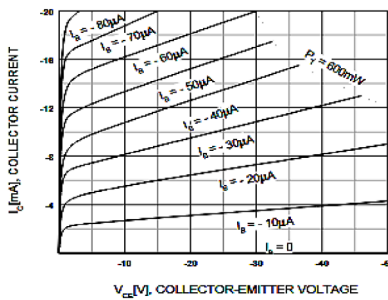


Fig 5: Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

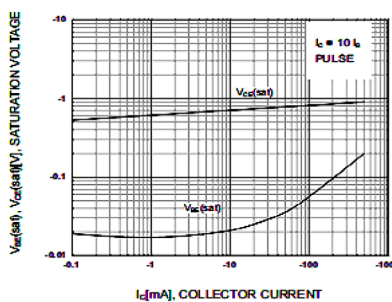


Fig 6: Gain Bandwidth Product

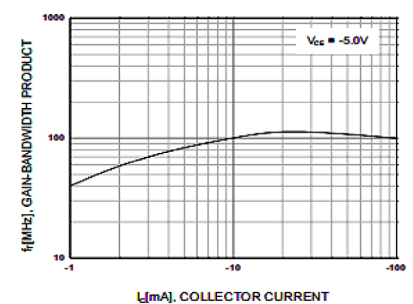


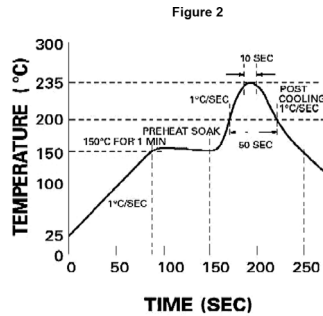
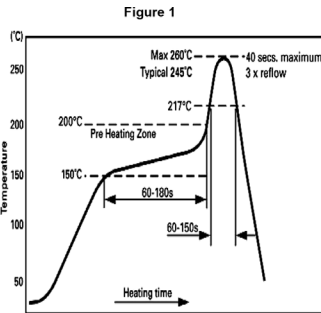
Fig 6: Gain Bandwidth Product

Recommended Reflow Solder Profiles

The recommended reflow solder profiles for Pb and Pb-free devices are shown below.

Figure 1 - The recommended solder profile for devices that have Pb-free terminal plating, and where a Pb free solder is used.

Figure 2 - The recommended solder profile for devices with Pb-free terminal plating used with leaded solder, or for devices with leaded terminal plating used with a leaded solder.



Reflow profiles in tabular form

Profile Feature	Sn-Pb System	Pb-Free System
Average Ramp-Up Rate	~3°C/second	~3°C/second
Preheat		
Temperature Range	150-170°C	150-200°C
Time	60-180 seconds	60-180 seconds
Time maintained above:		
Temperature	200°C	217°C
Time	30-50 seconds	60-150 seconds
Peak Temperature	235°C	260°C max.
Time within +0 -5°C of actual Peak	10 seconds	40 seconds
Ramp-Down Rate	3°C/second max.	6°C/second max.

Recommended Wave Solder Profiles

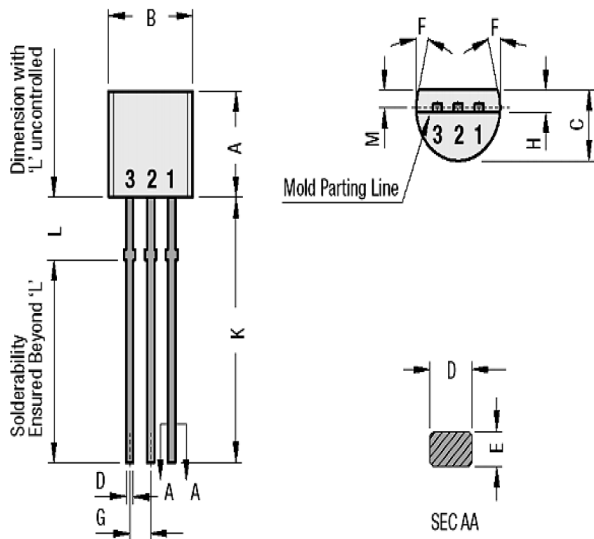
The Recommended solder Profile for Devices with Pb-free terminal plating where a Pb-free solder is used	The Recommended solder Profile for Devices with Pb-free terminal plating used with leaded solder, or for devices with leaded terminal plating used with leaded solder

Wave Profiles in tabular form

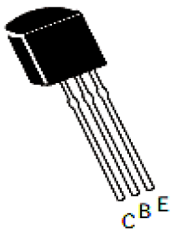
Profile Feature	Sn-Pb System	Pb-Free System
Average Ramp-Up Rate	~200°C/second	~200°C/second
Heating rate during preheat	Typical 1-2, Max 4°C/sec	Typical 1-2, Max 4°C/sec
Final preheat Temperature	Within 125°C of Solder Temp	Within 125°C of Solder Temp
Peak Temperature	235°C	235°C
Time within +0 -5°C of actual Peak	10 seconds	10 seconds
Ramp-Down Rate	5°C/second max.	5°C/second max

Diagram

TO-92 Leaded Plastic Package



Dim.	Min.	Max.
A	4.32	5.33
B	4.45	5.2
C	3.18	4.19
D	0.4	0.55
E	0.3	0.55
F	5°	
G	1.14	1.4
H	1.2	1.4
K	12.7	-
L	1.982	2.082
M	1.03	1.2



PIN Configuration

1. Emitter
2. Base
3. Collector

Part Number Table

Description	Part Number
Bipolar (BJT) Single Transistor, NPN, 45V, 100MHz, TO-92	BC337

Dimensions : Millimetres

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