

General Description

The APT13003L series are high voltage, high speed switching NPN power transistor specially designed for off-line switch mode power supplies with low output power.

The APT13003L series is available in TO-92 package.

Features

- High Switching Speed
- High Collector-Emitter Voltage
- Low Cost

Applications

- Battery Chargers for Mobile Phone
- Power Supply for DVD/STB

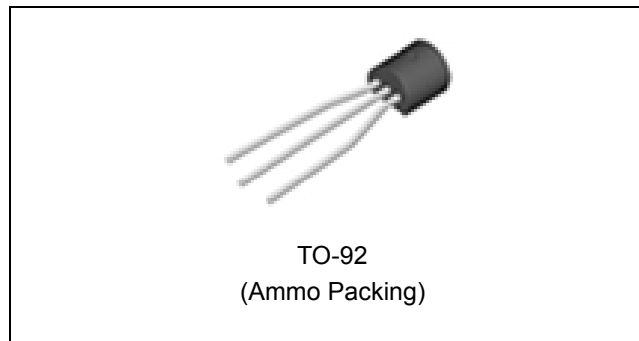


Figure 1. Package Types of APT13003L

Pin Configuration

Z Package
(TO-92 (Ammo Package))

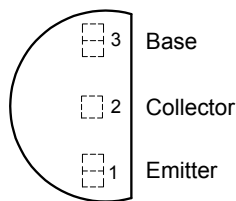
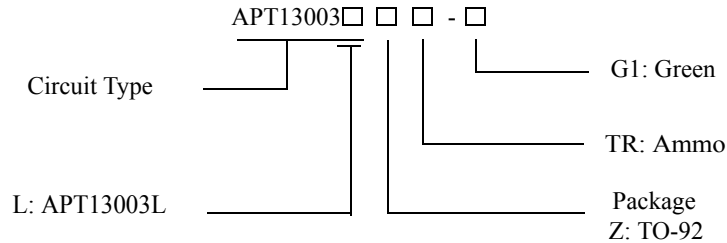


Figure 2. Pin Configurations of APT13003L (Top View)

HIGH VOLTAGE NPN TRANSISTOR
APT13003L
Ordering Information


Package	Part Number	Marking ID	Packing Type
TO-92	APT13003LZTR-G1	13003LZ-G1	Ammo

BCD Semiconductor's products, as designated with "G1" suffix in the part number, are RoHS compliant and Green.

Absolute Maximum Ratings (Note 1)

Parameter	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CES}	700	V
Collector-Emitter Voltage	V_{CEO}	450	V
Emitter-Base Voltage	V_{EBO}	9	V
Collector Current	I_C	0.8	A
Collector Peak Current	I_{CM}	1.6	A
Base Current	I_B	0.4	A
Base Peak Current	I_{BM}	0.8	A
Power Dissipation, $T_A=25^\circ\text{C}$	P_{TOT}	0.8	W
Operating Junction Temperature		150	$^\circ\text{C}$
Storage Temperature Range		-55 to 150	$^\circ\text{C}$

Note 1: Stresses greater than those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under "Recommended Operating Conditions" is not implied. Exposure to "Absolute Maximum Ratings" for extended periods may affect device reliability.

**HIGH VOLTAGE NPN TRANSISTOR****APT13003L****Thermal Characteristics**

Parameter	Symbol	Value	Unit
Thermal Resistance (Junction-to-Ambient)	θ_{JA}	156.25	$^{\circ}\text{C}/\text{W}$

Electrical Characteristics($T_C=25^{\circ}\text{C}$, unless otherwise specified.)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector Cut-off Current ($V_{BE}=-1.5\text{V}$)	I_{CEV}	$V_{CE}=700\text{V}$			10	μA
Collector-Emitter Sustaining Voltage ($I_B=0$)	$V_{CEO}(\text{sus})$	$I_C=0.1\text{mA}$	450			V
Collector-Emitter Saturation Voltage	$V_{CE}(\text{sat})$	$I_C=200\text{mA}$, $I_B=40\text{mA}$			0.5	V
DC Current Gain	h_{FE}	$I_C=100\text{mA}$, $V_{CE}=10\text{V}$	15	23	40	
		$I_C=300\text{mA}$, $V_{CE}=10\text{V}$	6	15	30	



Typical Performance Characteristics

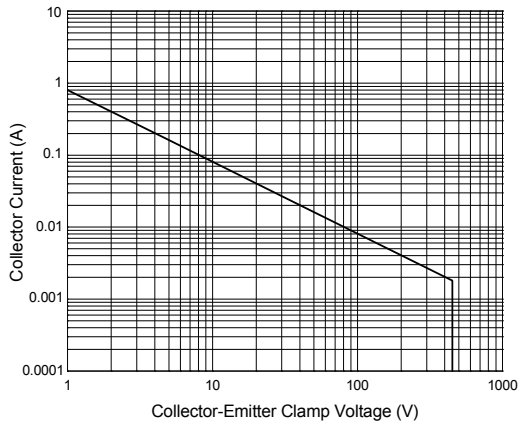


Figure 3. Safe Operating Areas

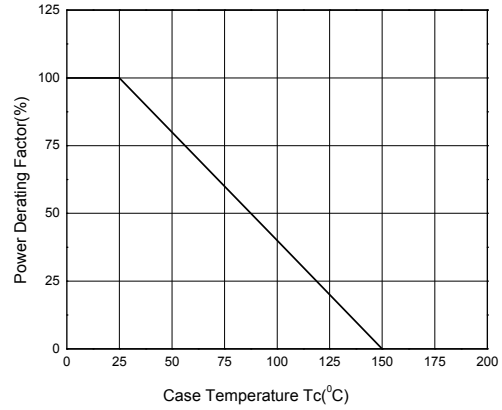


Figure 4. Power Derating Curve

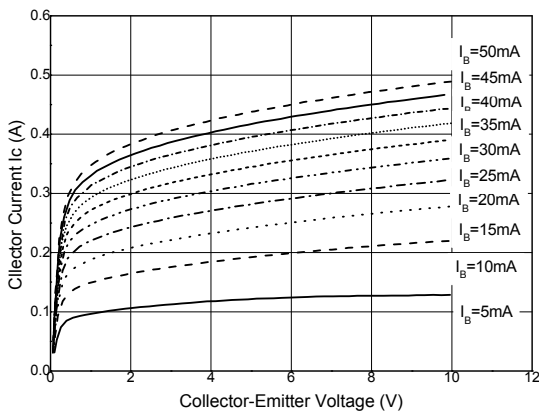


Figure 5. Static Characteristics

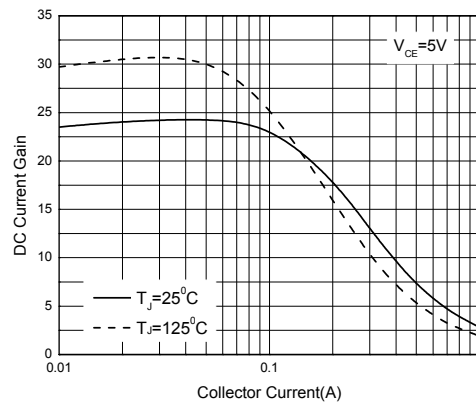


Figure 6. DC Current Gain



Typical Performance Characteristics (Continued)

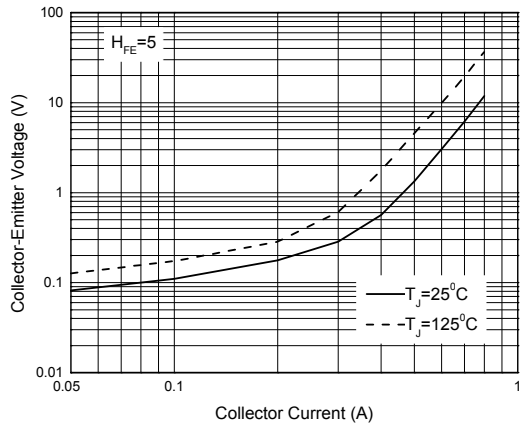


Figure 7. Collector-Emitter Saturation Region

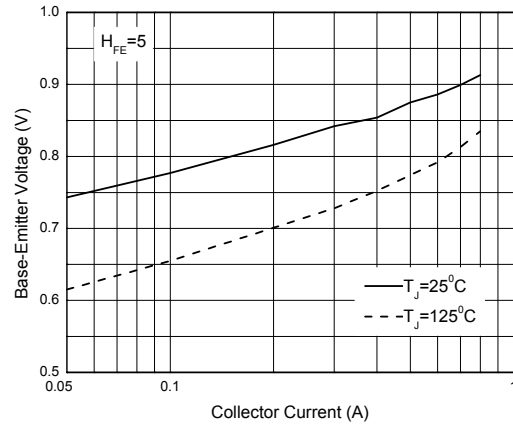


Figure 8. Base-Emitter Saturation Voltage



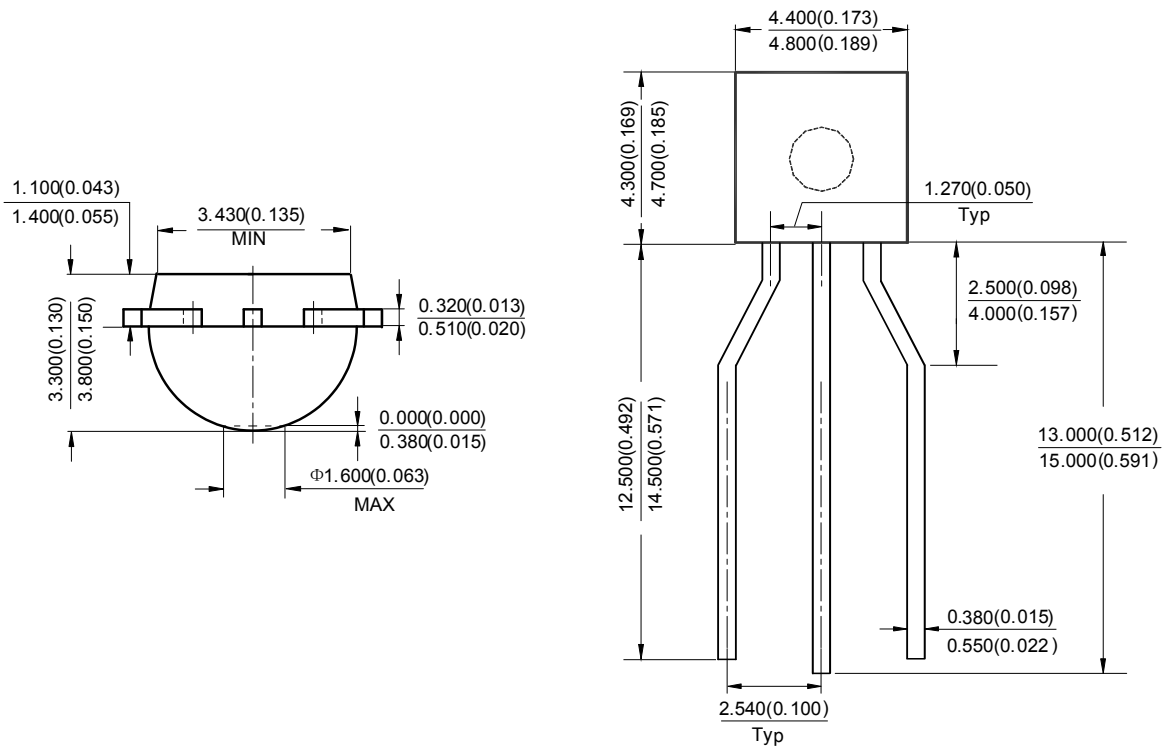
HIGH VOLTAGE NPN TRANSISTOR

APT13003L

Mechanical Dimensions (Continued)

TO-92 (Ammo Packing)

Unit: mm(inch)





BCD Semiconductor Manufacturing Limited

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