



BC846APN

DUAL SURFACE MOUNT NPN/PNP TRANSISTORS (COMPLEMENTARY)

This device contains two electrically-isolated complimentary pair (NPN and PNP) general-purpose transistors. This device is ideal for portable applications where board space is at a premium

VOLTAGE 65 Volt **POWER** 225 mWatt

SOT-363 Unit : inch(mm)

FEATURES

- Electrically-Isolated Complimentary Transistor Pairs
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

MECHANICAL DATA

- Case : SOT-363, Plastic
- Terminals : Solderable per MIL-STD-750, Method 2026
- Approx. Weight : 0.006 grams

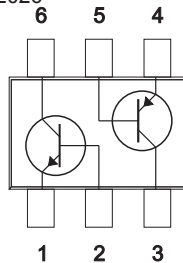
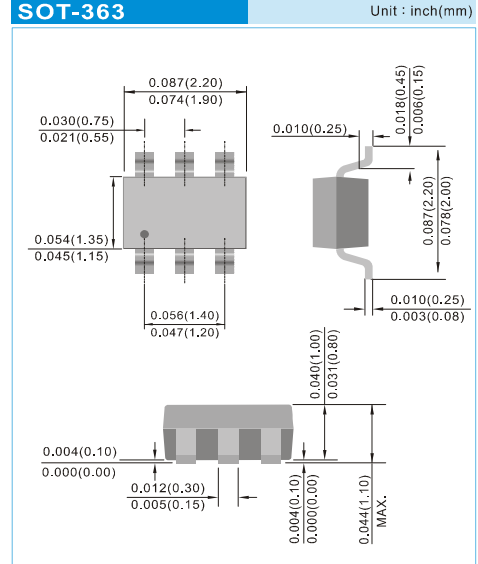


Fig.55



ABSOLUTE RATINGS-NPN

PARAMETER	SYMBOL	VALUE	UNITS
Collector - Emitter Voltage	V _{CEO}	65	V
Collector - Base Voltage	V _{CBO}	80	V
Emitter - Base Voltage	V _{EBO}	6.0	V
Collector Current - Continuous	I _c	100	mA

ABSOLUTE RATINGS-PNP

PARAMETER	SYMBOL	VALUE	UNITS
Collector - Emitter Voltage	V _{CEO}	-65	V
Collector - Base Voltage	V _{CBO}	-80	V
Emitter - Base Voltage	V _{EBO}	-5	V
Collector Current - Continuous	I _c	-100	mA

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THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	VALUE	UNITS
Max Power Dissipation (Note 1)	P_{TOT}	225	mW
Thermal Resistance , Junction to Ambient	$R_{\theta JA}$	556	°C/W
Junction Temperature	T_J	-55 to 150	°C
Storage Temperature	T_{STG}	-55 to 150	°C

Note 1: Transistor mounted on FR-4 board 70 x 60 x 1mm.

NPN ELECTRICAL CHARACTERISTICS (Note 2) $T_J=25^{\circ}\text{C}$ Unless otherwise noted

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
Collector - Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=10\text{mA}, I_B=0$	65	-	-	V
Collector - Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=10\mu\text{A}, I_E=0$	80	-	-	V
Emitter - Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=10\mu\text{A}, I_C=0$	6.0	-	-	V
Emitter-Base Cutoff Current	I_{EBO}	$V_{EB}=5\text{V}$	-	-	100	nA
Collector-Base Cutoff Current	I_{CBO}	$V_{CB}=30\text{V}, I_E=0$ $V_{CB}=30\text{V}, I_E=0, T_J=150^{\circ}\text{C}$	-	-	15 5.0	nA uA
DC Current Gain	h_{FE}	$I_C=10\mu\text{A}, V_{CE}=5\text{V}$	-	90	-	-
DC Current Gain	h_{FE}	$I_C=2.0\text{mA}, V_{CE}=5\text{V}$	110	180	220	-
Collector - Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C=10\text{mA}, I_B=0.5\text{mA}$ $I_C=100\text{mA}, I_B=5.0\text{mA}$	-	-	0.25 0.6	V
Base - Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C=10\text{mA}, I_B=0.5\text{mA}$ $I_C=100\text{mA}, I_B=5.0\text{mA}$	-	0.7 0.9	-	V
Base - Emitter Voltage	$V_{CE(SAT)}$	$I_C=2\text{mA}, V_{CE}=5.0\text{V}$ $I_C=10\text{mA}, V_{CE}=5.0\text{V}$	0.58 -	0.660 -	0.70 0.77	V
Collector - Base Capacitance	C_{CBO}	$V_{CB}=10\text{V}, I_E=0, f=1\text{MH}$	-	-	4.5	pF



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PNP ELECTRICAL CHARACTERISTICS (Note 2) $T_J=25^\circ\text{C}$ Unless otherwise noted

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
Collector - Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=-10\text{mA}$, $I_B=0$	-65	-	-	V
Collector - Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=-10\mu\text{A}$, $I_E=0$	-80	-	-	V
Emitter - Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=-1\mu\text{A}$, $I_C=0$	-5.0	-	-	V
Emitter-Base Cutoff Current	I_{EBO}	$V_{EB}=-5\text{V}$	-	-	-100	nA
Collector-Base Cutoff Current	I_{CBO}	$V_{CB}=-30\text{V}$, $I_E=0$ $V_{CB}=-30\text{V}$, $I_E=0$, $T_J=150^\circ\text{C}$	-	-	-15 -4.0	nA μA
DC Current Gain	h_{FE}	$I_C=-10\mu\text{A}$, $V_{CE}=-5\text{V}$	-	90	-	-
DC Current Gain	h_{FE}	$I_C=-2.0\text{mA}$, $V_{CE}=-5\text{V}$	110	180	220	-
Collector - Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C=-10\text{mA}$, $I_B=-0.5\text{mA}$ $I_C=-100\text{mA}$, $I_B=-5.0\text{mA}$	-	-	-0.30 -0.65	V
Base - Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C=-10\text{mA}$, $I_B=-0.5\text{mA}$ $I_C=-100\text{mA}$, $I_B=-5.0\text{mA}$	-	-0.7 -0.9	-	V
Base - Emitter Voltage	$V_{CE(SAT)}$	$I_C=-2\text{mA}$, $V_{CE}=-5.0\text{V}$ $I_C=-10\text{mA}$, $V_{CE}=-5.0\text{V}$	-0.60 -	- -	-0.75 -0.82	V
Collector - Base Capacitance	C_{CBO}	$V_{CB}=-10\text{V}$, $I_E=0$, $f=1\text{MH}$	-	-	4.5	pF



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NPN ELECTRICAL CHARACTERISTICS CURVE

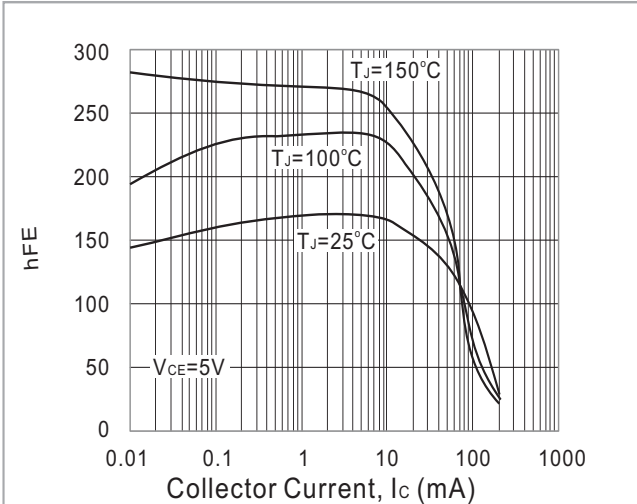


Fig.1- TYPICAL h_{FE} vs. Collector Current

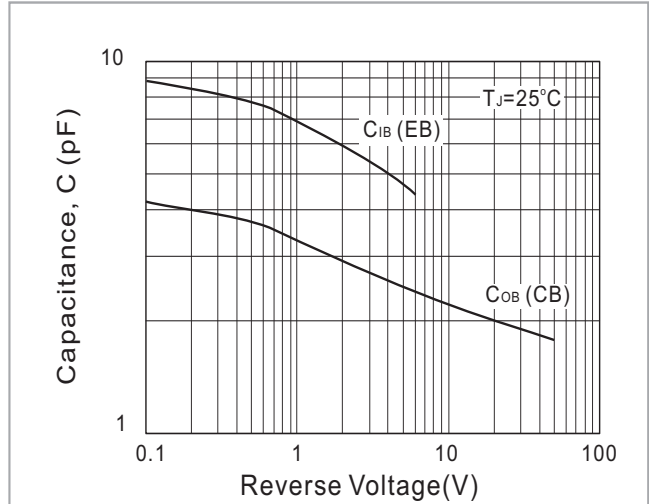


Fig.2- TYPICAL CAPACITANCES vs. REVERSE VOLTAGE

PNP ELECTRICAL CHARACTERISTICS CURVE

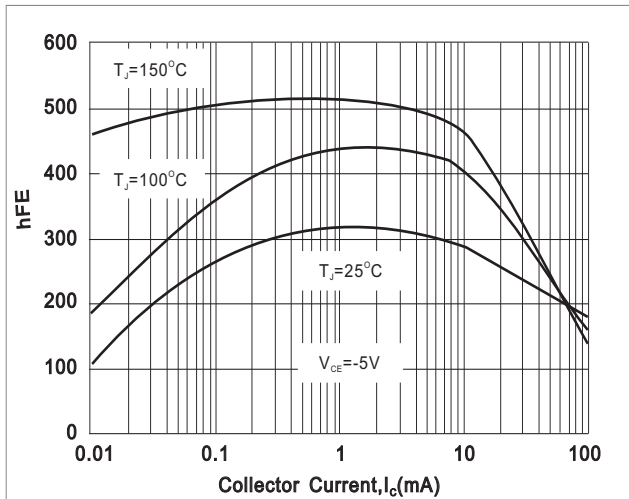


Fig.1- TYPICAL h_{FE} vs. Collector Current

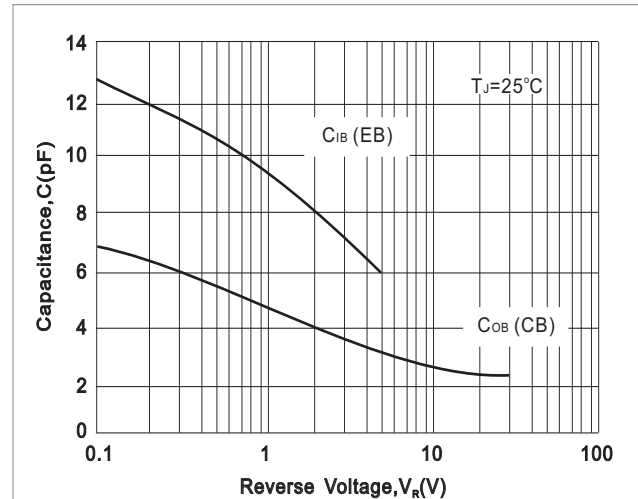


Fig.2- TYPICAL CAPACITANCES vs. REVERSE VOLTAGE

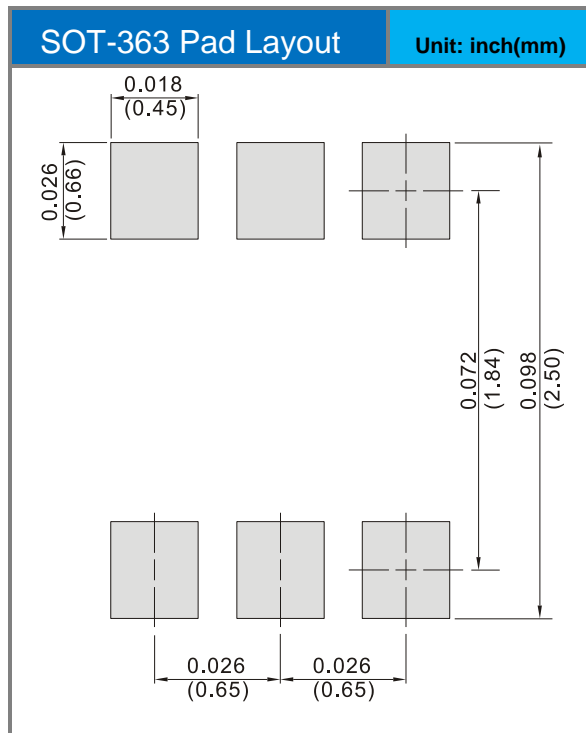


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Product and Packing Information

Part No.	Package Type	Packing Type	Marking
BC846APN	SOT-363	3K pcs / 7" reel	46N
BC846APN	SOT-363	10K pcs / 13" reel	46N

Mounting Pad Layout





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