

Dual NPN Transistor

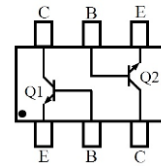
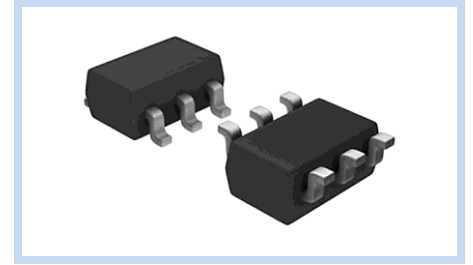
65V 250mW SOT-363

BC846xDW

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FEATURE

- Collector Current $I_C=100\text{mA}$
- Low Power Loss, High Efficiency
- Application: Signal Processing, Switching, Amplification



MECHANICAL DATA

- Case: SOT-363, Molded Plastic
- Terminals: Solderable per MIL-STD-750, Method 2026

MAXIMUM RATINGS

Parameter, $T_A=25^\circ\text{C}$	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	80	V
Collector-Emitter Voltage	V_{CEO}	65	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current	I_C	100	mA
Peak Collector Current	I_{CM}	200	mA
Power Dissipation	P_{tot}	250	mW
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	500	$^\circ\text{C/W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 to +150	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS

Off Characteristics		Conditions	Symbol	Min	Max	Unit
Collector-Base Breakdown Voltage		$I_C=10\mu\text{A}$	$V_{(BR)CBO}$	80	--	V
Collector-Emitter Breakdown Voltage		$I_C=10\text{mA}$	$V_{(BR)CEO}$	65	--	V
Emitter-Base Breakdown Voltage		$I_E=1\mu\text{A}$	$V_{(BR)EBO}$	6	--	V
Collector Base Cutoff Current		$V_{CB}=30\text{V}$	I_{CBO}	--	15	nA
Emitter Base Cut-Off Current		$V_{EB}=5\text{V}$	I_{EBO}	--	100	nA
Collector Output Capacitance		$V_{CB}=10\text{V}$, $I_E=0\text{A}$, $f=1\text{MHz}$	C_{ob}	--	4.5	pF
On Characteristics		Conditions	Symbol	Min	Max	Unit
DC Current Gain	BC846ADW	$V_{CE}=5\text{V}$, $I_C=2\text{mA}$	h_{FE}	110	220	--
	BC846BDW	$V_{CE}=5\text{V}$, $I_C=2\text{mA}$	h_{FE}	200	450	--
	BC846CDW	$V_{CE}=5\text{V}$, $I_C=2\text{mA}$	h_{FE}	420	800	--
Collector-Emitter Saturation Voltage		$I_C=10\text{mA}$, $I_B=0.5\text{mA}$	$V_{CE(sat)}$	--	0.25	V
		$I_C=100\text{mA}$, $I_B=5\text{mA}$		--	0.60	
Base-Emitter Voltage		$I_C=2\text{mA}$, $V_{CE}=5\text{V}$	$V_{BE(ON)}$	0.58	0.70	V
		$I_C=10\text{mA}$, $V_{CE}=5\text{V}$		--	0.77	
Gain Bandwidth Product		$V_{CE}=5\text{V}$, $I_C=10\text{mA}$, $f=100\text{MHz}$	f_T	100	--	MHz

Note: Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.

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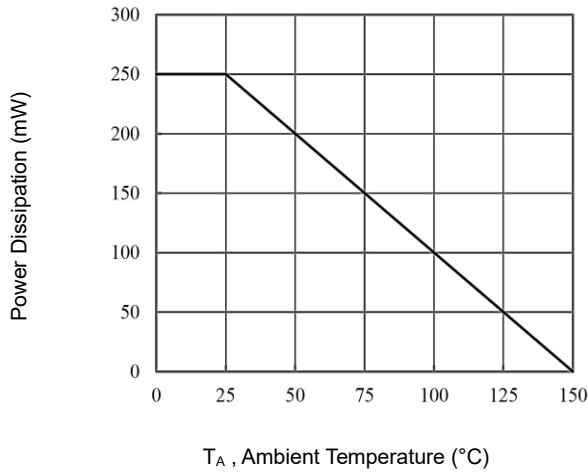
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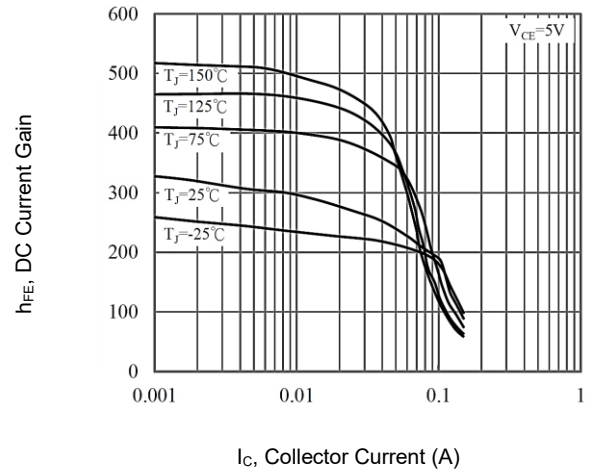
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CHARACTERISTIC CURVES

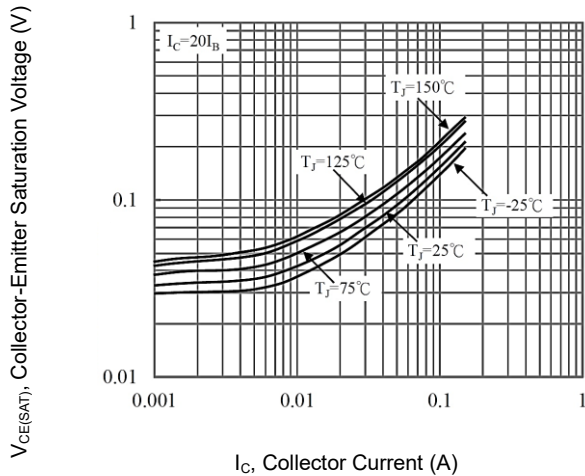
Power Derating Curve



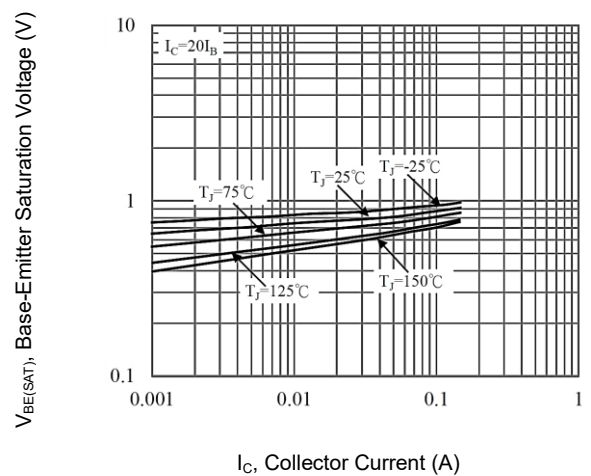
DC Current Gain



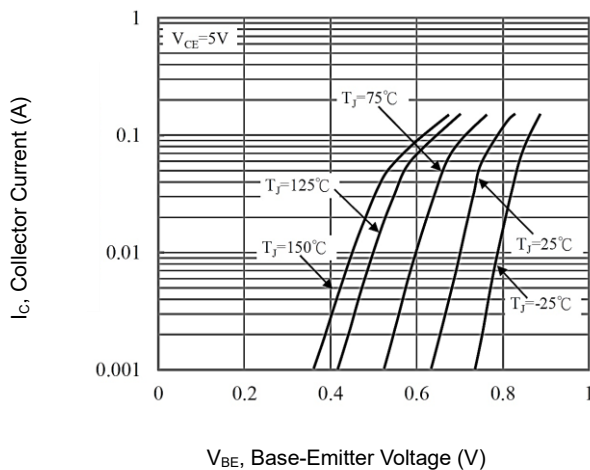
Collector-Emitter Saturation Voltage



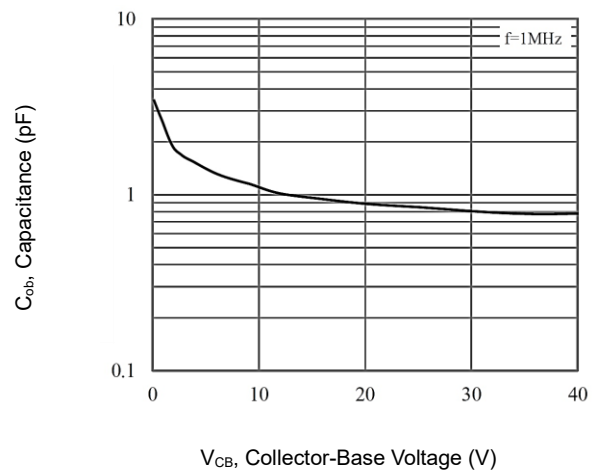
Base-Emitter Saturation Voltage



Base-Emitter Voltage vs. Collector Current



Output Capacitance



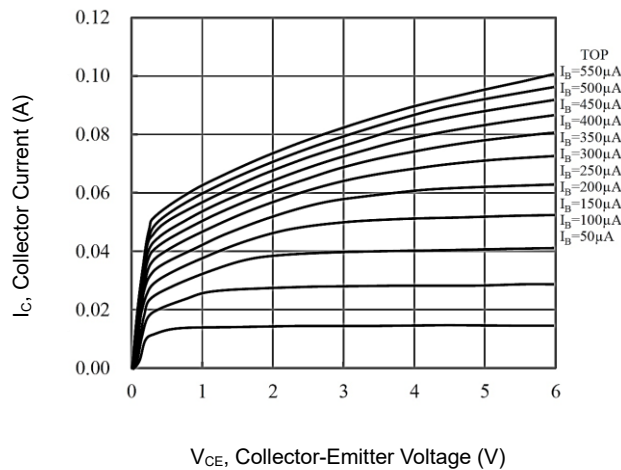
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CHARACTERISTIC CURVES

Output Characteristics Curves



DIMENSIONS

Item	Min (mm)	Max (mm)
A1	-	0.10
A2	0.90	1.00
A3	0.90	1.10
b	0.10	0.30
C	0.10	0.25
D	1.80	2.20
e	0.65 TYP	
e1	1.30 TYP	
E	2.00	2.20
E1	1.15	1.35
L	0.15	0.40
Y	1.30	
Y1	0.60	
Y2	2.50	
X	0.42	
X1	0.65	

