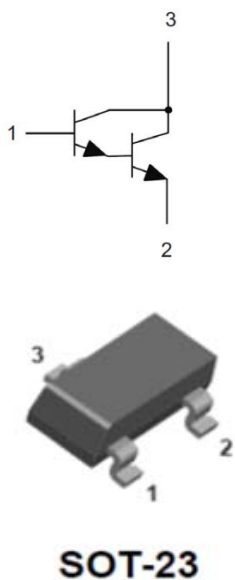


NPN Darlington Transistor



Features

- Moisture sensitivity level 1
- Halogen free and RoHS compliant
- Surface mount package ideally suited for automatic insertion

Application

- Signal amplification
- Switching circuit

Mechanical data

- **Package:** SOT-23
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102

■ Maximum Ratings (T_a=25°C Unless otherwise specified)

Item	Symbol	Unit	Conditions	Value
Device marking code				FG
Collector-base voltage	V _{CBO}	V	I _C =100μA, I _E =0	80
Collector-emitter voltage	V _{CEO}	V	I _C =10mA, I _B =0	60
Emitter-base voltage	V _{EBO}	V	I _E =10μA, I _C =0	10
Collector current	I _C	A		0.5
Power dissipation	P _D	mW		300
Junction temperature	T _J	°C		-55 to +150
Storage temperature	T _{STG}	°C		-55 to +150



BCV47

RoHS
COMPLIANT

■ Electrical Characteristics (T_a=25°C Unless otherwise specified)

Item	Symbol	Unit	Conditions	Min	Typ	Max
Collector-base breakdown voltage	V _{(BR)CBO}	V	I _C =100μA, I _E =0	80		
Collector-emitter breakdown voltage	V _{(BR)CEO}	V	I _C =10mA, I _B =0	60		
Emitter-base breakdown voltage	V _{(BR)EBO}	V	I _E =10μA, I _C =0	10		
Collector-base cut-off current	I _{CBO}	μA	V _{CB} =60V			0.1
Emitter-base cut-off current	I _{EBO}	μA	V _{EB} =4V			0.1
DC current gain	h _{FE1}		V _{CE} =1V, I _C =0.1mA	2000		
	h _{FE2}		V _{CE} =5V, I _C =10mA	4000		
	h _{FE3}		V _{CE} =-5V, I _C =100mA	10000		
	h _{FE4}		V _{CE} =-5V, I _C =500mA	2000		
Collector-emitter saturation voltage	V _{CE(sat)}	V	I _C =100mA, I _B =0.1mA			1
Base-emitter saturation voltage	V _{BE(sat)}	V	I _C =100mA, I _B =0.1mA			1.5
Transition frequency	f _T	MHz	V _{CE} =-20V, I _C =-50mA, f=100MHz		170	
Collector-base output capacitance	C _{OB}	pF	V _{CB} =10V, I _E =0A, f=1MHz		3.5	

■ Thermal Characteristics

Parameter	Symbol	Unit	Value
Thermal resistance, junction-to-ambient	R _{θJA} ⁽¹⁾	°C/W	417
Thermal resistance, junction-to-case	R _{θJC} ⁽¹⁾	°C/W	334

Note:

(1) Device mounted on PCB, single-sided copper, with standard footprint

■ Characteristics

Fig 1: Static Characteristics

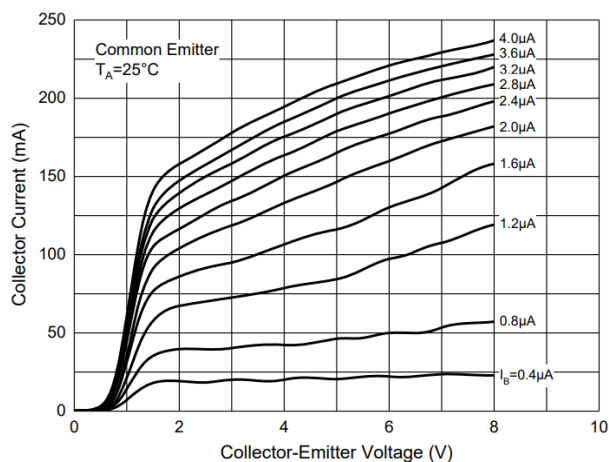


Fig 2: DC Current Gain

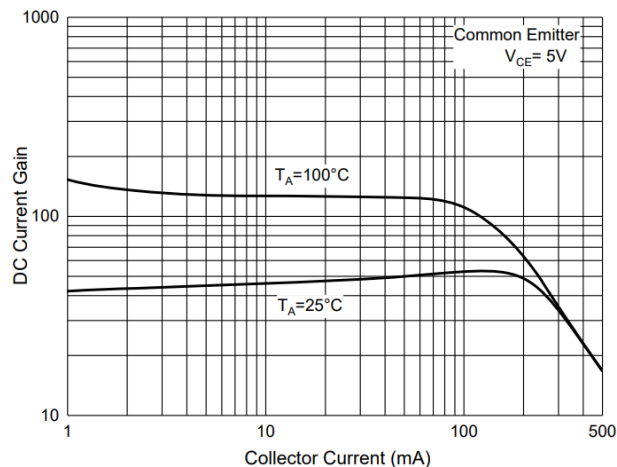


Fig 3: Collector-Emitter Saturation Voltage

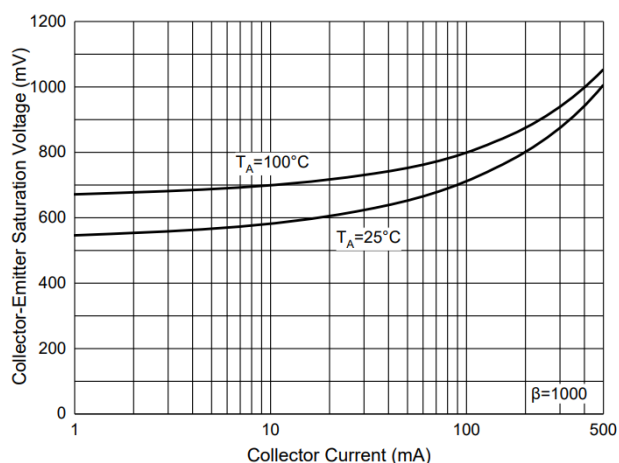


Fig 4: Base-Emitter Saturation Voltage

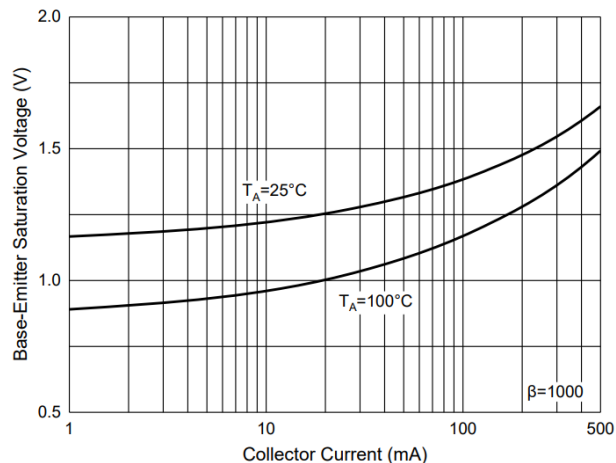


Fig 5: Base-Emitter On Voltage

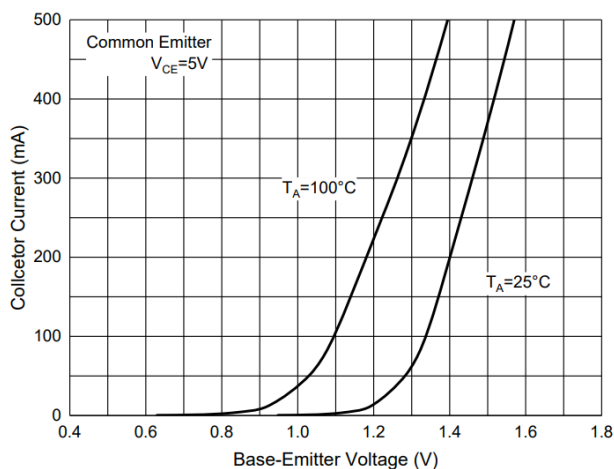
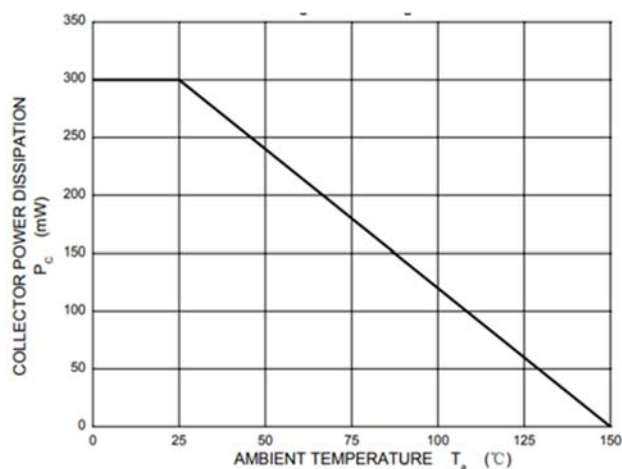


Fig 6: P_D-Ta Curve





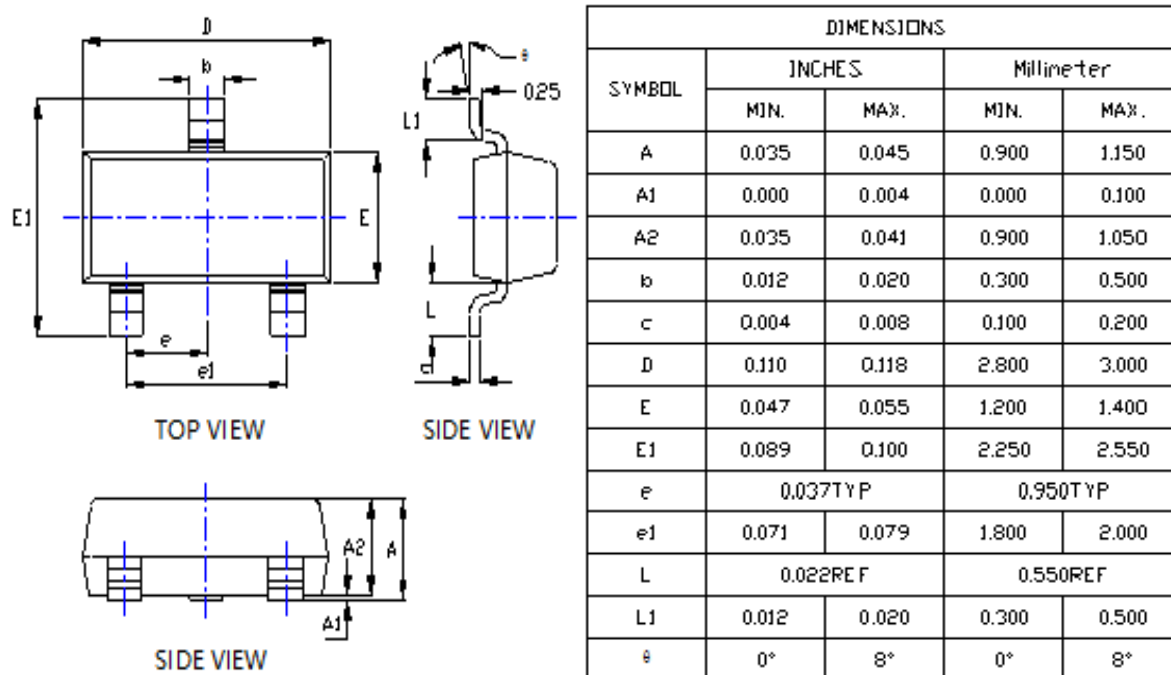
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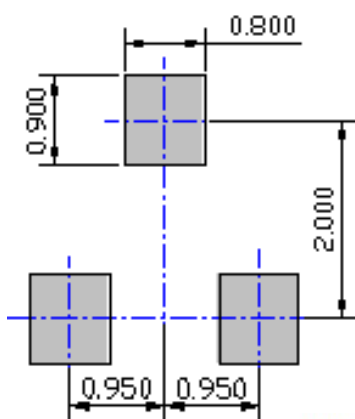
■ Ordering Information

Preferred P/N	Packing code	Unit weight(g)	Minimum package(pcs)	Inner box quantity(pcs)	Outer carton quantity(pcs)	Delivery mode
BCV47	F2	Approximate 0.008	3000	30000	120000	7" reel
BCV47	F4	Approximate 0.008	10000	/	210000	13" reel

■ Outline Dimensions



■ Suggested Pad Layout



Note:

1. All dimensions are in millimeters (mm) unless otherwise specified.
[所有尺寸均以毫米为单位, 除非另有说明]
2. General tolerances: $\pm 0.10\text{mm}$ unless otherwise specified.
[通用公差为 $\pm 0.10\text{mm}$, 除非另有说明]
3. Dimensions and tolerances per ASME Y14.5M-2018.
[尺寸和公差遵循 ASME Y14.5M-2018 标准]
4. All dimensions shown are exclusive of burrs and gate residues. Burrs and gate vestiges shall not exceed 0.15 mm in maximum.
[所有尺寸均不包括毛刺和浇口残留。毛刺与浇口残留的尺寸不得超过 0.15mm]
5. Dimension b does not include dambar protrusion of max 0.100 mm per side.
[尺寸b不包括单边最大0.100 mm的中筋凸出部分]
6. Dimensions D and E are the overall extreme outer dimensions of the mold compound. These dimensions exclude mold flash, lead flash, protrusions and burrs but include the maximum allowable mold mismatch.
[D和E是塑封体的外部极限尺寸, 不包括包封溢料、内引线溢料、凸出部分以及胶体毛刺, 但是包含了包封错位的最大尺寸]
7. Formed leads shall be planar with respect to one another within a maximum of 0.076 mm relative to the seating plane.
[成型的管脚应为同一平面, 共面性最大为0.1mm]



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