

# 2N6036

## PNP Darlington Power Transistor

### Features

- Halogen free available upon request by adding suffix "-HF"
- This device is designed for general purpose amplifier and low-speed switching applications.
- Lead Free Finish/RoHS Compliant (Note1) ("P" Suffix designates RoHS Compliant. See ordering information)
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Marking: 2N6036

### Maximum Ratings\*

Symbol	Rating	Rating	Unit
$V_{CE0}$	Collector-Emitter Voltage	80	V
$V_{CB0}$	Collector-Base Voltage	80	V
$V_{EB0}$	Emitter-Base Voltage	5.0	V
$I_C$	Collector Current, Continuous	4.0	A
	Peak	8.0	A
$I_B$	Base Current	100	mA
$T_J$	Operating Junction Temperature	-55 to +150	°C
$T_{STG}$	Storage Temperature	-55 to +150	°C

### Thermal Characteristics

Symbol	Rating	Max	Unit
$P_D$	Total Device Dissipation Derate above 25°C	40 0.32	W W/°C
$P_D$	Total Device Dissipation Derate above 25°C	1.5 0.012	W W/°C
$R_{JC}$	Thermal Resistance, Junction to Case	3.12	°C/W
$R_{JA}$	Thermal Resistance, Junction to Ambient	83.3	°C/W

### Electrical Characteristics @25°C Unless Otherwise Specified

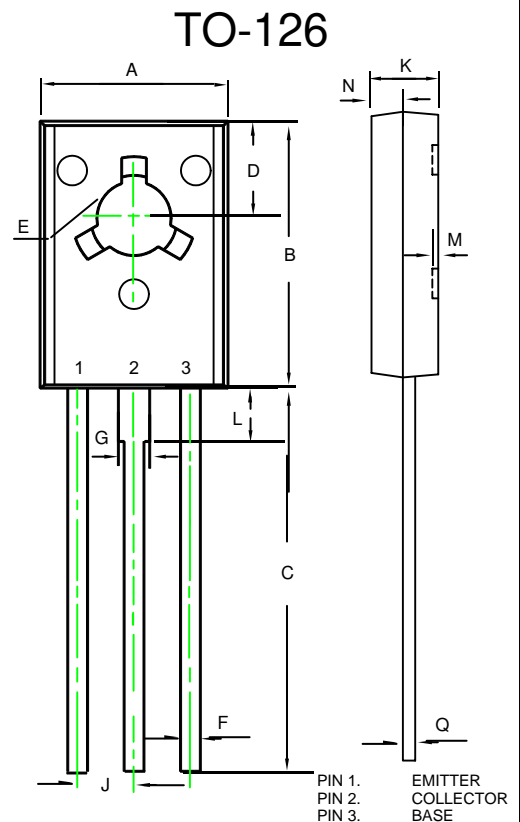
Symbol	Parameter	Min	Max	Units
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#### OFF CHARACTERISTICS

$V_{CE0(sus)}$	Collector-Emitter Breakdown Voltage <sup>(1)</sup> ( $I_C=100mA$ , $I_E=0$ )	80	---	Vdc
$I_{CBO}$	Collector Cutoff Current ( $V_{CB}=60Vdc$ , $I_E=0$ )	---	100	$\mu A$ dc
$I_{CEX}$	Collector Cutoff Current ( $V_{CE}=80Vdc$ , $V_{EB(off)}=1.5Vdc$ ) ( $V_{CE}=80Vdc$ , $V_{EB(off)}=1.5Vdc$ , $T_C=125^\circ C$ )	---	100 500	$\mu A$ mA
$I_{CBO}$	Collector Cutoff Current ( $V_{CB}=80Vdc$ , $I_E=0$ )	---	0.5	mA dc
$I_{EBO}$	Emitter Cutoff Current ( $V_{EB}=5.0Vdc$ , $I_C=0$ )	---	2.0	mA dc

\*Indicates JEDEC Registered Data

Notes: 1. High Temperature Solder Exemption Applied, see EU Directive Annex Notes 7.



DIM	DIMENSIONS				NOTE
	INCHES		MM		
	MIN	MAX	MIN	MAX	
A	0.291	0.307	7.40	7.80	
B	0.417	0.433	10.60	11.00	
C	0.602	0.618	15.30	15.70	
D	0.154	0.161	3.90	4.10	
E	0.118	0.126	3.00	3.20	
F	0.026	0.034	0.66	0.86	
G	0.046	0.054	1.17	1.37	
J	0.090TYP		2.290TYP		
K	0.098	0.114	2.50	2.90	
L	0.083	0.091	2.10	2.30	
M	0.000	0.012	0.00	0.30	
N	0.043	0.059	1.10	1.50	
Q	0.018	0.024	0.45	0.60	

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Symbol	Parameter	Min	Max	Units
<b>DYNAMIC CHARACTERISTICS</b>				
$h_{FE}$	DC Current Gain ( $V_{CE}=3.0Vdc, I_C=0.5Adc$ )	500	---	---
	( $V_{CE}=3.0Vdc, I_C=2.0Adc$ )	750	15000	---
	( $V_{CE}=3.0Vdc, I_C=4.0Adc$ )	100	---	---
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage ( $I_C=2.0Adc, I_B=8.0mAdc$ ) ( $I_C=4.0Adc, I_B=40mAdc$ )	---	2.0 3.0	Vdc
$V_{BE(sat)}$	Base-Emitter Saturation Voltage ( $I_C=4.0Adc, I_B=40mAdc$ )	---	4.0	Vdc
$V_{BE(on)}$	Base-Emitter On Voltage ( $I_C=2.0Adc, V_{CE}=3.0Vdc$ )	---	2.8	Vdc
<b>DYNAMIC CHARACTERISTICS</b>				
$ h_{fe} $	Small-Signal Current-Gain ( $I_C=0.75Adc, V_{CE}=10Vdc, f=1.0MHz$ )	25	---	---
$C_{ob}$	Output Capacitance ( $V_{CB}=10Vdc, I_E=0, f=0.1MHz$ )	---	200	pF

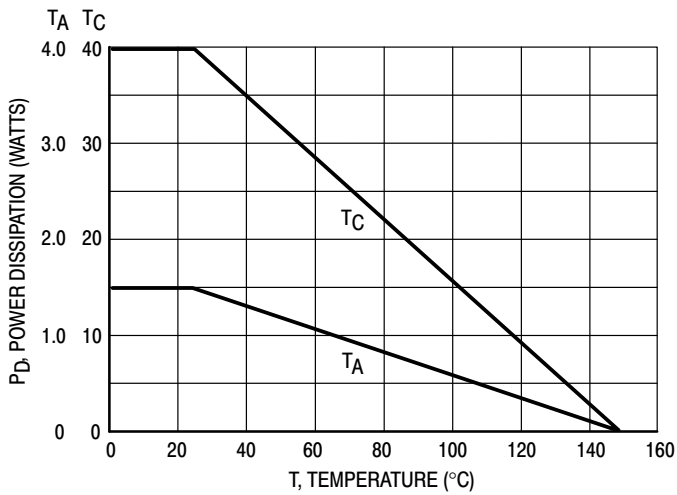


Figure 1. Power Derating

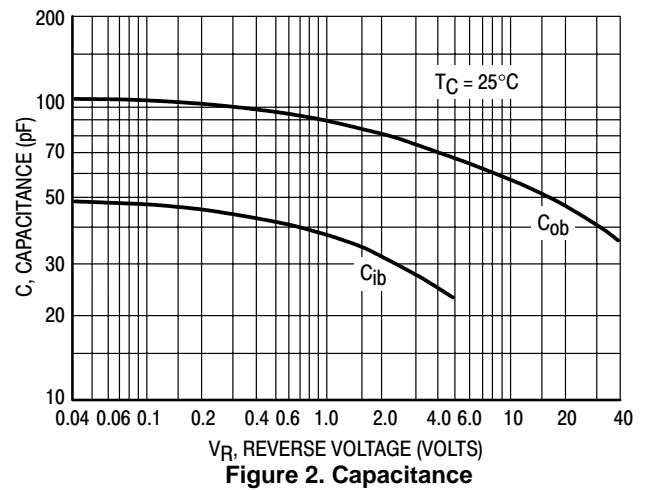


Figure 2. Capacitance

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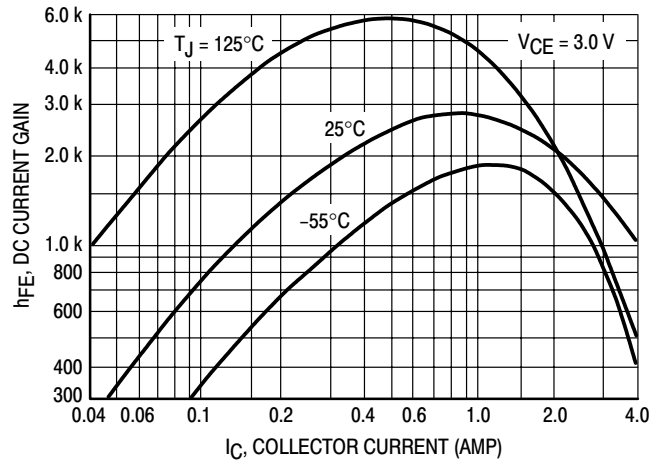
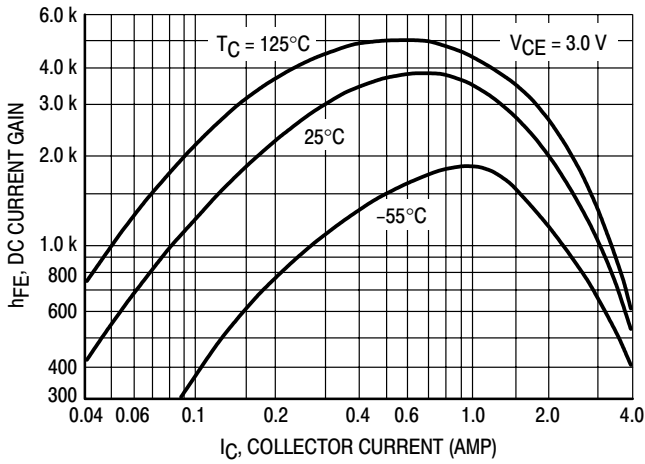


Figure 3. DC Current Gain

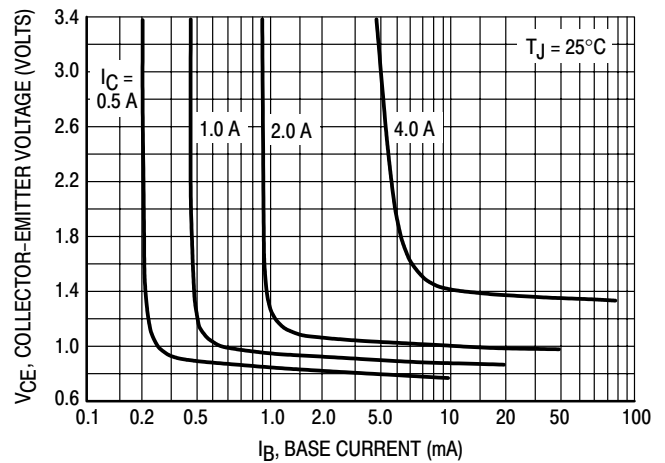
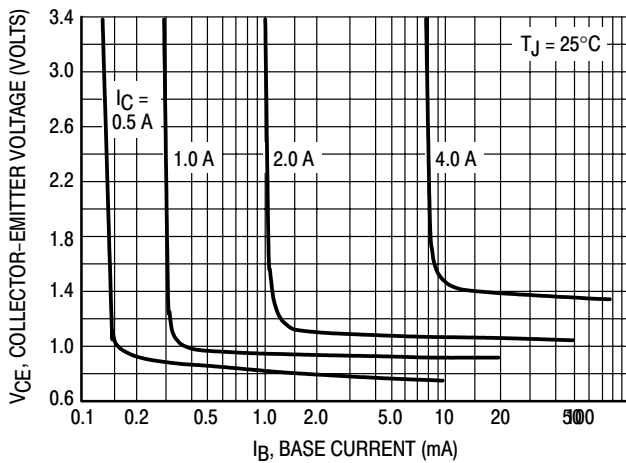


Figure 4. Collector Saturation Region

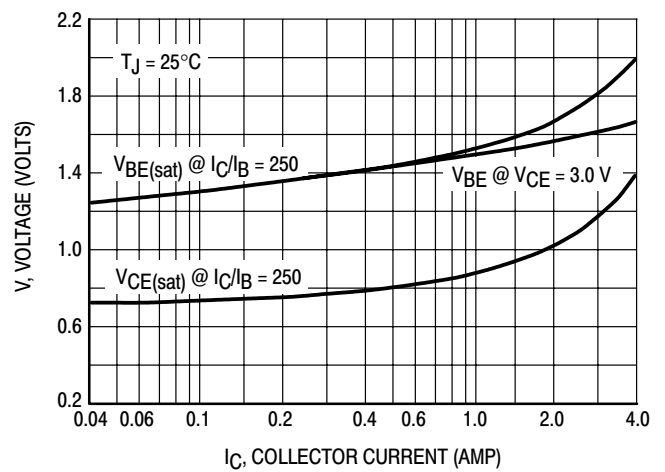
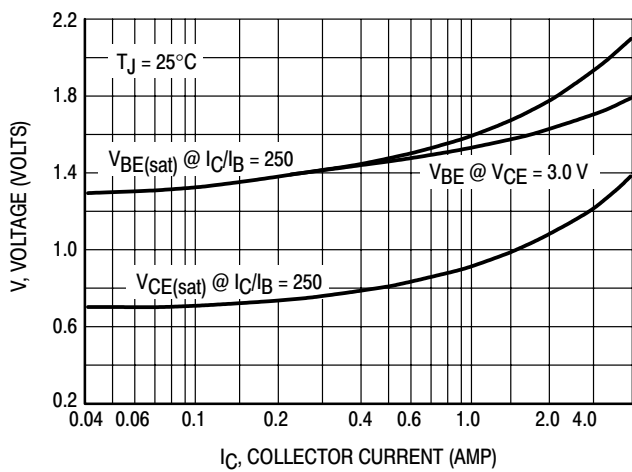


Figure 5. "On" Voltages



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## Ordering Information :

Device	Packing
Part Number-BP	Bulk; 1 Kpcs/Box

Note : Adding "-HF" suffix for halogen free, eg. Part Number-BP-HF

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