



Micro Commercial Components



Micro Commercial Components  
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## Features

- Halogen free available upon request by adding suffix "-HF"
- 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
- Capable of 1.25Watts of Power Dissipation.
- Collector-current 1.5A
- Collector-base Voltage 700V
- Operating and storage junction temperature range: -55°C to +150°C

## Electrical Characteristics @ 25°C Unless Otherwise Specified

Symbol	Parameter	Min	Max	Units
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### OFF CHARACTERISTICS

$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage ( $I_C=10mA$ , $I_B=0$ )	400		Vdc
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage ( $I_C=1000\mu A$ , $I_E=0$ )	700		Vdc
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage ( $I_E=1000\mu A$ , $I_C=0$ )	9.0		Vdc
$I_{CBO}$	Collector Cutoff Current ( $V_{CB}=700Vdc$ , $I_E=0$ )		1000	$\mu A$
$I_{CEO}$	Collector Cutoff Current ( $V_{CE}=400Vdc$ , $I_B=0$ )		500	$\mu A$
$I_{EBO}$	Emitter Cutoff Current ( $V_{EB}=9.0Vdc$ , $I_C=0$ )		1000	$\mu A$

### ON CHARACTERISTICS

$h_{FE(1)}$	DC Current Gain ( $I_C=0.5A$ , $V_{CE}=5.0Vdc$ )	8.0	40	
$h_{FE(2)}$	DC Current Gain ( $I_C=1.5mA$ , $V_{CE}=5.0Vdc$ )	5.0		
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage ( $I_C=1000mA$ , $I_B=250mA$ )		1.0	Vdc
$V_{BE(sat)}$	Base-Emitter Saturation Voltage ( $I_C=1000mA$ , $I_B=250mA$ )		1.2	Vdc
$V_{BE}$	Base-Emitter Voltage ( $I_E=2000mA$ )		3.0	Vdc

### SMALL-SIGNAL CHARACTERISTICS

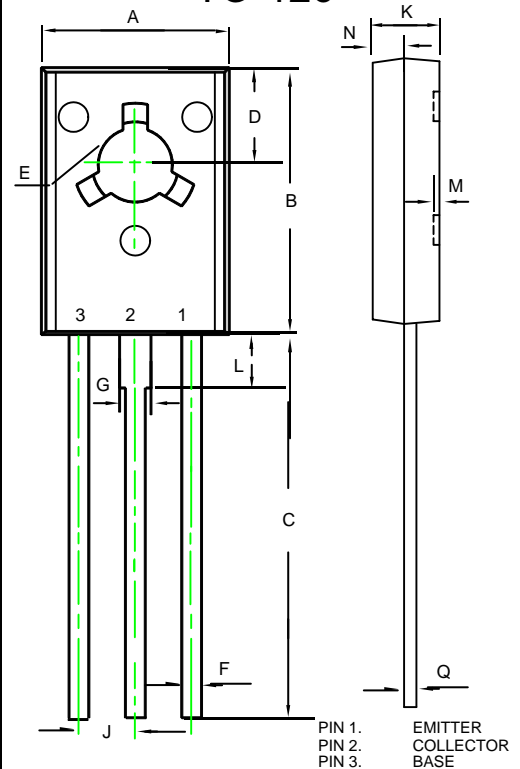
$f_T$	Transistor Frequency ( $I_C=100mA$ , $V_{CE}=10Vdc$ , $f=1.0MHz$ )	5.0		MHz
$t_f$	Fall Time	$V_{CC}=100V$ , $I_C=1.0A$ , $I_{B1}=I_{B2}=0.2A$	0.5	$\mu S$
$t_s$	Storage Time		2.5	$\mu S$

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

## MJE13003A

## NPN Silicon Plastic-Encapsulate Transistor

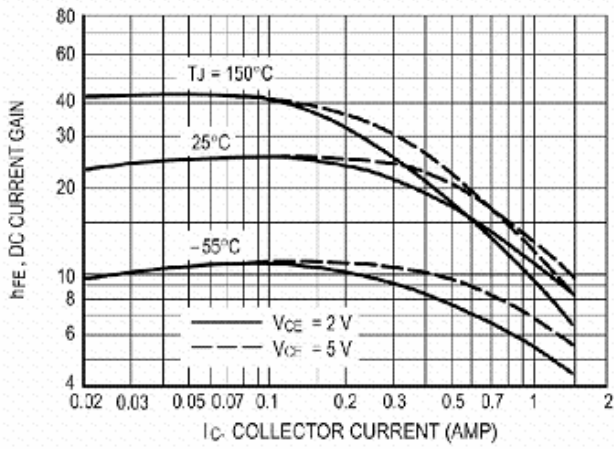
### TO-18



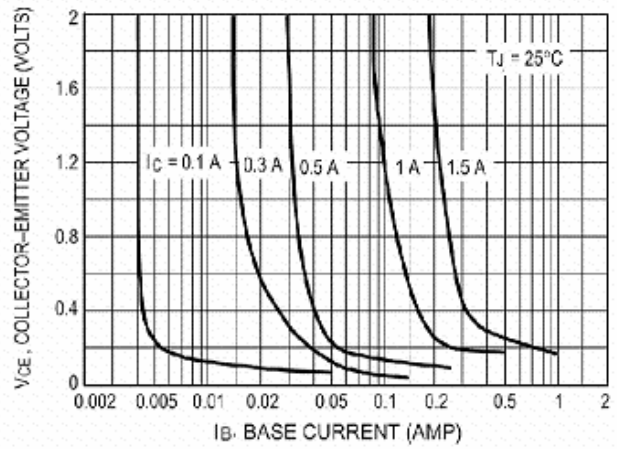
### DIMENSIONS

DIM	INCHES		MM		NOTE
	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	

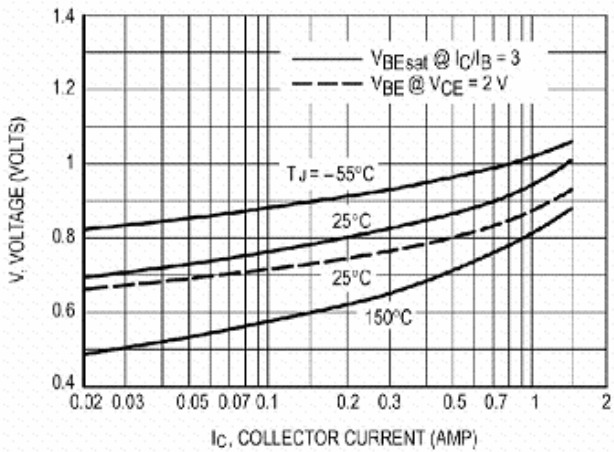
# MJE13003A



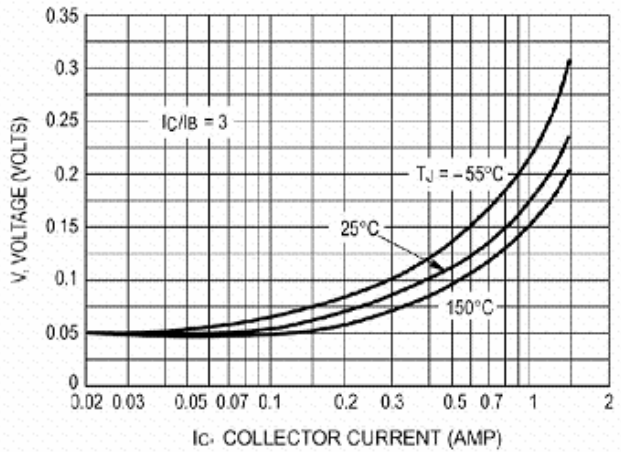
DC Current Gain



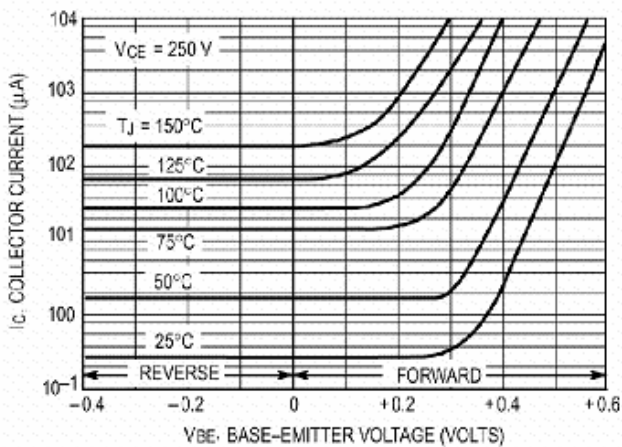
Collector Saturation Region



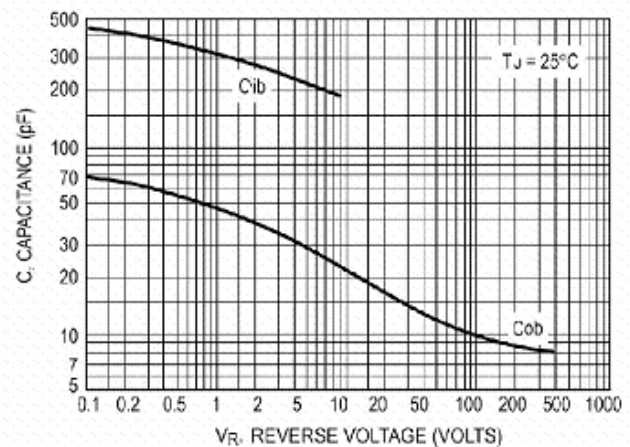
Base-Emitter Voltage



Collector-Emitter Saturation Region



Collector Cutoff Region



Capacitance



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### Ordering Information :

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

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

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