



Micro Commercial Components  
 20736 Marilla Street Chatsworth  
 CA 91311  
 Phone: (818) 701-4933  
 Fax: (818) 701-4939

# MJ10012

## NPN Silicon Power Darlington Transistor

### Features

- With TO-3 package

### Maximum Ratings

Symbol	Rating	Rating	Unit
$V_{CE0}$	Collector-Emitter Voltage	400	V
$V_{CBO}$	Collector-Base Voltage	600	V
$V_{EBO}$	Emitter-Base Voltage	8.0	V
$I_C$	Collector Current	10	A
$P_C$	Collector power dissipation	175	W
$T_J$	Junction Temperature	200	°C
$T_{STG}$	Storage Temperature	-65 to +200	°C

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

Symbol	Parameter	Min	Max	Units
<b>OFF CHARACTERISTICS</b>				
$V_{CE0(SUS)}$	Collector-Emitter Breakdown Voltage ( $I_C=200mA$ , $I_B=0$ )	400	---	Vdc
$I_{CBO}$	Collector-Base Cutoff Current ( $V_{CB}=600Vdc$ , $I_E=0$ )	---	1.0	mA
$I_{EBO}$	Emitter-Base Cutoff Current ( $V_{EB}=6.0Vdc$ , $I_C=0$ )	---	40	mA
$I_{CEO}$	Collector-emitter Cutoff Current ( $V_{CE}=400V$ ; $I_B=0$ )	---	1.0	mA

### ON CHARACTERISTICS

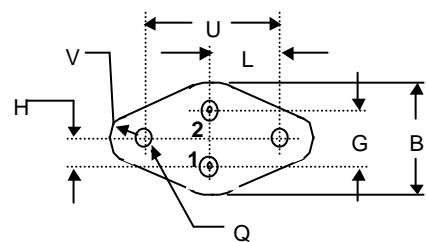
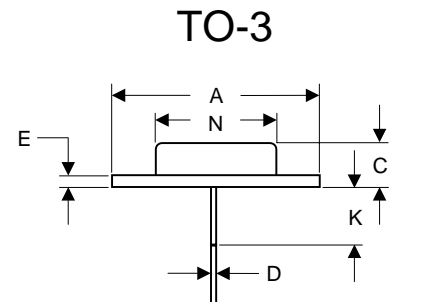
$h_{FE}$	Forward Current Transfer ratio ( $I_C=3.0A$ , $V_{CE}=6.0Vdc$ ) ( $I_C=6.0A$ , $V_{CE}=6.0Vdc$ ) ( $I_C=10A$ , $V_{CE}=6.0Vdc$ )	300 100 20	2000	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage ( $I_C=3.0A$ , $I_B=0.6A$ ) ( $I_C=6.0A$ , $I_B=0.6A$ ) ( $I_C=10A$ , $I_B=2.0A$ )		1.5 2.0 2.5	Vdc
$V_{BE(sat)}$	Base-Emitter Saturation Voltage ( $I_C=6.0A$ , $I_B=0.6A$ ) ( $I_C=10A$ , $I_B=2.0A$ )		2.5 3.0	Vdc

### DYNAMIC CHARACTERISTICS

$C_{ob}$	Output Capacitance ( $V_{cb}=10Vdc$ , $I_E=0$ , $f_{test}=100kHz$ )		350	pF
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### SWITCHING CHARACTERISTICS

$t_s$	Storage Time ( $V_{CC} = 12 Vdc$ , $I_C = 6.0 A$ , $I_{B1} = I_{B2} = 0.3 A$ )		15	μs
$t_f$	Fall Time ( $V_{CC} = 12 Vdc$ , $I_C = 6.0 A$ , $I_{B1} = I_{B2} = 0.3 A$ )		15	μs



PIN 1. BASE  
 PIN 2. EMITTER  
 CASE. COLLECTOR

DIM	DIMENSIONS				NOTE
	INCHES		MM		
	MIN	MAX	MIN	MAX	
A	1.550	REF	39.37	REF	
B	----	1.050	----	26.67	
C	.250	.335	6.35	8.51	
D	.038	.043	0.97	1.09	
E	0.55	0.70	1.40	1.77	
G	.430	BSC	10.92	BSC	
H	.215	BSC	5.46	BSC	
K	.440	.480	11.18	12.19	
L	.665	BSC	16.89	BSC	
N	----	.830	----	21.08	
Q	.151	.165	3.84	4.19	∅
U	1.187	BSC	30.15	BSC	
V	.131	.188	3.33	4.77	