

## Silicon NPN Darlington Power Transistor

### DESCRIPTION :

- With TO-3 packaging
- Very high DC current gain
- Monolithic darlington transistor with integrated antiparallel collector-emitter diode
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

### APPLICATIONS :

- Electronic ignition
- Alternator regulator
- Motor controls

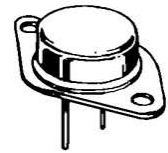
**NPN**

**MJ10005**

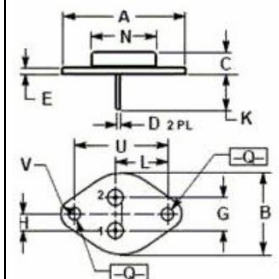
**20 AMPERES  
SILICON POWER  
DARLINGTON  
TRANSISTOR  
400 VOLTS  
175 WATTS**

### ABSOLUTE MAXIMUM RATINGS(Ta=25°C )

Characteristic	Symbol	MJ10005	Unit
Collector-Emitter Voltage	V <sub>CEO</sub>	400	V
Collector-Base Voltage	V <sub>CBO</sub>	500	V
Emitter-Base Voltage	V <sub>EBO</sub>	8.0	V
Collector Current-Continuous	I <sub>C</sub>	20	A
Collector Current-Peak	I <sub>CM</sub>	30	A
Base Current-Continuous	I <sub>B</sub>	2.5	A
Collector Power Dissipation	P <sub>C</sub>	175	Watts
Max. Junction Temperature	T <sub>J</sub>	200	°C
Storage Temperature Range	T <sub>STG</sub>	-65 to +200	°C



**TO-3**



PIN 1.BASE.  
2.EMITTER  
COLLECTOR(CASE)

DIM	MILLIMETERS	
	MIN	MAX
A	39.00	
B	25.2	26.67
C	8.30	8.90
D	1.45	1.60
E	1.50	1.70
G	11.00	
H	5.50	
K	10.50	13.50
L	16.75	17.05
N	19.40	19.62
O	4.00	4.20
U	29.00	31.00
V	4.00	4.20

### THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	R <sub>th j-c</sub>	1.0	°C/W

**ELECTRICAL CHARACTERISTICS ( $T_C=25^\circ\text{C}$  unless otherwise noted)**

Characteristic	Symbol	Min.	Max.	Unit
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**OFF CHARACTERISTICS**

Collector-Emitter Sustaining Voltage ( $I_C = 10\text{ mA}$ , $I_B = 0$ )	$V_{CEO(SUS)}$	400		V
Collector Cutoff Current ( $V_{CE} = 400\text{ V}$ , $I_B = 0$ )	$I_{CEO}$		5.0	mA
Collector Cutoff Current ( $V_{CB} = 400\text{ V}$ , $I_E = 0$ )	$I_{CBO}$		0.1	mA
Emitter Cutoff Current ( $V_{EB} = 2.0\text{ V}$ , $I_C = 0$ )	$I_{EBO}$		175	mA

**ON CHARACTERISTICS(1)**

DC Current Gain ( $I_C = 5\text{ A}$ , $V_{CE} = 5.0\text{ V}$ ) ( $I_C = 10\text{ A}$ , $V_{CE} = 5.0\text{ V}$ )	$h_{FE}$	300 100	2000	
Collector-Emitter Saturation Voltage ( $I_C = 10\text{ A}$ , $I_B = 400\text{ mA}$ ) ( $I_C = 20\text{ A}$ , $I_B = 2.0\text{ A}$ )	$V_{CE(sat)}$		1.9 3.0	V
Base-Emitter Saturation Voltage ( $I_C = 10\text{ A}$ , $I_B = 400\text{ mA}$ ) ( $I_C = 10\text{ A}$ , $I_B = 400\text{ mA}$ ; $T_C = 100^\circ\text{C}$ )	$V_{BE(sat)}$		2.5 2.5	V

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