Central™
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Manufacturers of World Class Discrete Semiconductors
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MJ10023

NPN SILICON
POWER DARLINGTON TRANSISTOR

JEDEC TO-3 CASE

DESCRIPTION

The CENTRAL SEMICONDUCTOR MJ10023 is a Silicon NPN Power Darlington Transistor, mounted in a hermetically sealed metal case, designed for high voltage, high speed, power applications.

MAXIMUM RATINGS (T_A=25°C unless otherwise noted)

	SYMBOL		UNITS
Collector-Emitter Voltage	V_{CEO}	400	V
Collector-Emitter Voltage	V_{CEV}	600	V
Emitter-Base Voltage	V_{EBO}	8.0	V
Collector Current	I_C	40	A
Peak Collector Current	I_{CM}	80	A
Base Current	I_B	20	A
Peak Base Current	I_{BM}	40	A
Power Dissipation (T_C=25°C)	P_D	250	W
Operating and Storage Junction Temperature	T_J,T_{stg}	-65 to +200	°C
Thermal Resistance	Θ_{JC}	0.7	°C/W

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

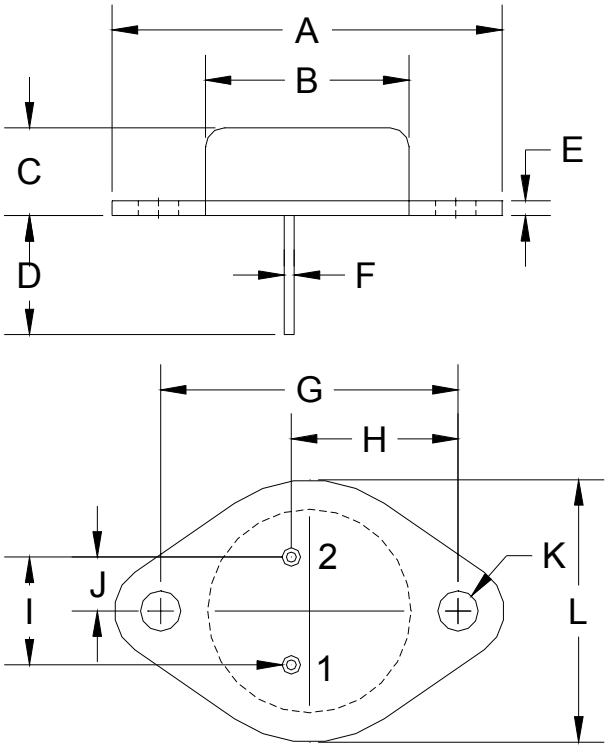
SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_{CEV}	V_{CE}=600V, $V_{BE(OFF)}$=1.5V		0.25	mA
I_{CEV}	V_{CE}=600V, $V_{BE(OFF)}$=1.5V, T_C=150°C		5.0	mA
I_{CER}	V_{CE}=600V, R_{BE}=50Ω, T_C=100°C		5.0	mA
I_{EBO}	V_{EB}=2.0V		175	mA
BV_{CEO}	I_C=100mA	400		V
$V_{CE(SAT)}$	I_C=20A, I_B=1.0A		2.2	V
$V_{CE(SAT)}$	I_C=20A, I_B=1.0A, T_C=100°C		2.5	V
$V_{CE(SAT)}$	I_C=40A, I_B=5.0A		5.0	V
$V_{BE(SAT)}$	I_C=20A, I_B=1.2A		2.5	V
$V_{BE(SAT)}$	I_C=20A, I_B=1.2A, T_C=100°C		2.5	V
h_{FE}	V_{CE}=5.0V, I_C=10A	50	600	
V_F	I_F=20A		5.0	V
C_{ob}	V_{CB}=10V, I_E=0, f=1.0kHz	150	600	pF

(SEE REVERSE SIDE)

ELECTRICAL CHARACTERISTICS (CONTINUED)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
t_d	V_{CC}=250V, I_C=20A, I_{B1}=1.0A, $V_{BE(off)}$=5.0V	-	0.03	0.2	µs
t_r	$V_{BE(off)}$=5.0V, t_P=50µs, Duty Cycle ≤ 2.0%	-	0.40	1.2	µs
t_s		-	0.90	2.5	µs
t_f		-	0.30	0.9	µs
t_{sv}	I_{CM}=20A, V_{CEM}=250V, I_{B1}=1.0A,	-	1.9	4.4	µs
t_c	$V_{BE(off)}$=5.0V, T_C=100°C	-	0.6	2.0	µs
t_{fi}		-	0.3	-	µs
t_{sv}	I_{CM}=20A, V_{CEM}=250V, I_{B1}=1.0A,	-	1.0	-	µs
t_c	$V_{BE(off)}$=5.0V, T_C=25°C	-	0.3	-	µs
t_{fi}		-	0.15	-	µs

TO-3 PACKAGE - MECHANICAL OUTLINE



DIMENSIONS				
	INCHES		MILLIMETERS	
SYMBOL	MIN	MAX	MIN	MAX
A	1.516	1.573	38.50	39.96
B (DIA)	0.748	0.875	19.00	22.23
C	0.250	0.450	6.35	11.43
D	0.433	0.516	11.00	13.10
E	0.054	0.065	1.38	1.65
F	0.035	0.045	0.90	1.15
G	1.177	1.197	29.90	30.40
H	0.650	0.681	16.50	17.30
I	0.420	0.440	10.67	11.18
J	0.205	0.225	5.21	5.72
K (DIA)	0.151	0.172	3.84	4.36
L	0.984	1.050	25.00	26.67

TO-3 (REV: R1)

R1

Lead Code:

1) Base
2) Emitter
Case) Collector

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