

D40K SERIES
NPN SILICON
DARLINGTON POWER
TRANSISTOR



www.centrasemi.com

DESCRIPTION:

The CENTRAL SEMICONDUCTOR D40K series types are NPN silicon Darlington power transistors designed for general purpose amplifier applications where high gain is required.

MARKING: FULL PART NUMBER



TO-202 CASE

MAXIMUM RATINGS: ($T_A=25^\circ\text{C}$)

Collector-Emitter Voltage	V_{CES}	30	50	V
Collector-Emitter Voltage	V_{CEO}	30	50	V
Emitter-Base Voltage	V_{EBO}		13	V
Continuous Collector Current	I_C		2.0	A
Peak Collector Current	I_{CM}		3.0	A
Continuous Base Current	I_B		0.2	A
Power Dissipation	P_D		1.67	W
Power Dissipation ($T_C=25^\circ\text{C}$)	P_D		10	W
Operating and Storage Junction Temperature	T_J, T_{stg}		-65 to +150	$^\circ\text{C}$
Thermal Resistance	θ_{JA}		75	$^\circ\text{C/W}$
Thermal Resistance	θ_{JC}		12.5	$^\circ\text{C/W}$

SYMBOL	D40K1, 3	D40K2, 4	UNITS
V_{CES}	30	50	V
V_{CEO}	30	50	V
V_{EBO}		13	V
I_C		2.0	A
I_{CM}		3.0	A
I_B		0.2	A
P_D		1.67	W
P_D		10	W
T_J, T_{stg}		-65 to +150	$^\circ\text{C}$
θ_{JA}		75	$^\circ\text{C/W}$
θ_{JC}		12.5	$^\circ\text{C/W}$

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

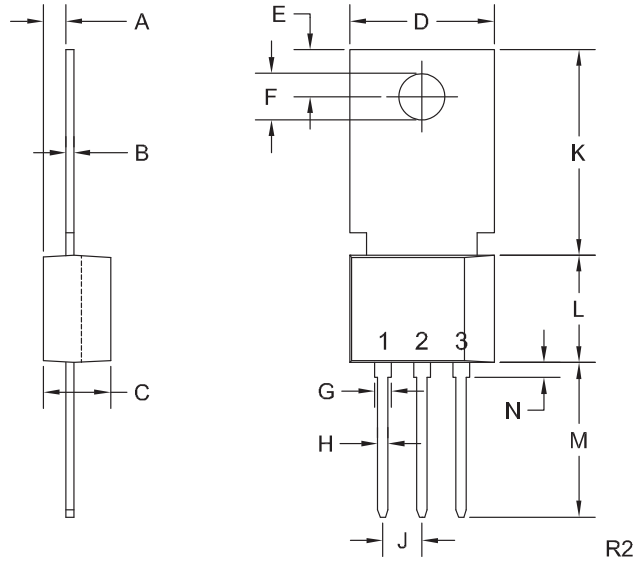
SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I_{CES}	$V_{CE}=\text{Rated } V_{CES}$			500	nA
I_{EBO}	$V_{EB}=13\text{V}$			100	nA
BV_{CEO}	$I_C=10\text{mA}$ (D40K1, 3)	30			V
BV_{CEO}	$I_C=10\text{mA}$ (D40K2, 4)	50			V
$V_{CE(SAT)}$	$I_C=1.5\text{A}, I_B=3.0\text{mA}$ (D40K1, 2)			1.5	V
$V_{CE(SAT)}$	$I_C=1.0\text{A}, I_B=2.0\text{mA}$ (D40K3, 4)			1.5	V
$V_{BE(SAT)}$	$I_C=1.5\text{A}, I_B=3.0\text{mA}$ (D40K1, 2)			2.5	V
$V_{BE(SAT)}$	$I_C=1.0\text{A}, I_B=2.0\text{mA}$ (D40K3, 4)			2.5	V
h_{FE}	$V_{CE}=5.0\text{V}, I_C=200\text{mA}$	10K			
h_{FE}	$V_{CE}=5.0\text{V}, I_C=1.5\text{A}$ (D40K1, 2)	1K			
h_{FE}	$V_{CE}=5.0\text{V}, I_C=1.0\text{A}$ (D40K3, 4)	1K			
f_T	$V_{CE}=5.0\text{V}, I_C=20\text{mA}$		75		MHz
C_{cb}	$V_{CB}=10\text{V}, f=1.0\text{MHz}$			10	pF

R1 (23-January 2012)

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TO-202 CASE - MECHANICAL OUTLINE



LEAD CODE:
1) Emitter
2) Base
3) Collector
Tab is common to pin 3

MARKING:
FULL PART NUMBER

SYMBOL	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.055	0.071	1.40	1.80
B	0.016	0.024	0.40	0.60
C	0.173	0.181	4.40	4.60
D	0.374	0.413	9.50	10.5
E	0.118	0.154	3.00	3.90
F (DIA)	0.124	0.150	3.15	3.80
G	0.035	0.055	0.90	1.40
H	0.023	0.031	0.59	0.80
J	0.094	0.106	2.39	2.69
K	0.459	0.559	11.66	14.21
L	0.280	0.346	7.12	8.80
M	0.406	0.531	10.3	13.5
N	0.024	0.059	0.60	1.50

TO-202 (REV: R2)

R1 (23-January 2012)

OUTSTANDING SUPPORT AND SUPERIOR SERVICES



PRODUCT SUPPORT

Central's operations team provides the highest level of support to insure product is delivered on-time.

- Supply management (Customer portals)
- Inventory bonding
- Consolidated shipping options
- Custom bar coding for shipments
- Custom product packing

DESIGNER SUPPORT/SERVICES

Central's applications engineering team is ready to discuss your design challenges. Just ask.

- Free quick ship samples (2nd day air)
- Online technical data and parametric search
- SPICE models
- Custom electrical curves
- Environmental regulation compliance
- Customer specific screening
- Up-screening capabilities
- Special wafer diffusions
- PbSn plating options
- Package details
- Application notes
- Application and design sample kits
- Custom product and package development

REQUESTING PRODUCT PLATING

1. If requesting Tin/Lead plated devices, add the suffix "TIN/LEAD" to the part number when ordering (example: 2N2222A TIN/LEAD).
2. If requesting Lead (Pb) Free plated devices, add the suffix "PBFREE" to the part number when ordering (example: 2N2222A PBFREE).

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