CS684 TO3

PNP SILICON DARLINGTON POWER TRANSISTORS

PNP eptaxial-base transistors in monolithic Darlington circuit for audio and video applications.
They are mounted in Jedec TO-3 metal package.
CS684 is the BD684 in TO3 package.
Compliance to RoHS.

ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings		Value	Unit
$-V_{CEO}$	Collector-Emitter Voltage		140	V
$-V_{CBO}$	Collector-Base Voltage		140	V
$-V_{EBO}$	Emitter-Base Voltage		5	V
$-I_C$	Collector Current	$-I_C$	4	A
		$-I_{CM}$	6	
$-I_B$	Base current (peak value)	$-I_{BM}$	0.1	A
P_T	Total power Dissipation	@ T_{mb} = 25°C	65	Watts
T_J	*Junction Temperature*		150	°C
T_{Stg}	Storage Temperature		-65 to +150	°C

THERMAL CHARACTERISTICS

Symbol	Ratings	Value	Unit
$R_{thJ\text{-}mb}$	Thermal Resistance, Junction to mouting base	3.12	K/W
$R_{thJ\text{-}a}$	Thermal Resistance, Junction to ambient in free air	100	K/W

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ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit
$-I_{CBO}$	Collector cut-off current	I_E=0 , $-V_{CB}$= $-V_{CEOMAX}$=140 V	-	-	0,2	mA
		I_E=0 , $-V_{CB}$= $-1/2V_{CBOMAX}$= 70V T_j= 150°C	-	-	1	
$-I_{CEO}$	Collector cut-off current	I_B=0 , $-V_{CE}$= $-1/2V_{CEOMAX}$=70 V	-	-	0,2	mA
$-I_{EBO}$	Emitter cut-offcurrent	I_C=0, $-V_{EB}$=5 V	-	-	5	mA
$-V_{CE(SAT)}$	Collector-Emitter saturation Voltage	$-I_C$=1.5 A, $-I_B$=6 mA	-	-	2	V
h_{FE}	DC Current Gain	$-V_{CE}$=3 V, $-I_C$=500 mA	-	2000	-	
		$-V_{CE}$=3 V, $-I_C$=1,5 A	750	-	-	
		$-V_{CE}$=3 V, $-I_C$=4 A	-	750	-	
$-V_{BE}$	Base-Emitter Voltage(1&2)	$-V_{CE}$=3 V, $-I_C$=1,5 A	-	-	2,5	V
h_{fe}	Small signal current gain	$-V_{CE}$=3 V, $-I_C$=1,5 A, f= 1 MHz	10	-	-	
f_{hfe}	Ut-off frequency	$-V_{CE}$=3 V, $-I_C$=1,5 A	-	60	-	kHz
V_F	Diode forward voltage	I_F=1,5 A	-	1,5	-	V
$-I_{(SB)}$	Second-breakdown collector current	$-V_{CE}$=50 V, t_P= 20ms,non rep. without heatsink	0,8	-	-	A
t_{on}	Turn-on time	$-I_{con}$= 1,5A, I_{bon}= $-I_{boff}$= 6mA V_{CC}=30V	-	0,8	2	µs
t_{off}	Turn-off time		-	4,5	8	

1. Measured under pulse conditions :t_P <300µs, δ <2%.
2. V_{BE} decreases by about 3,6 mV/K with increasing temperature.

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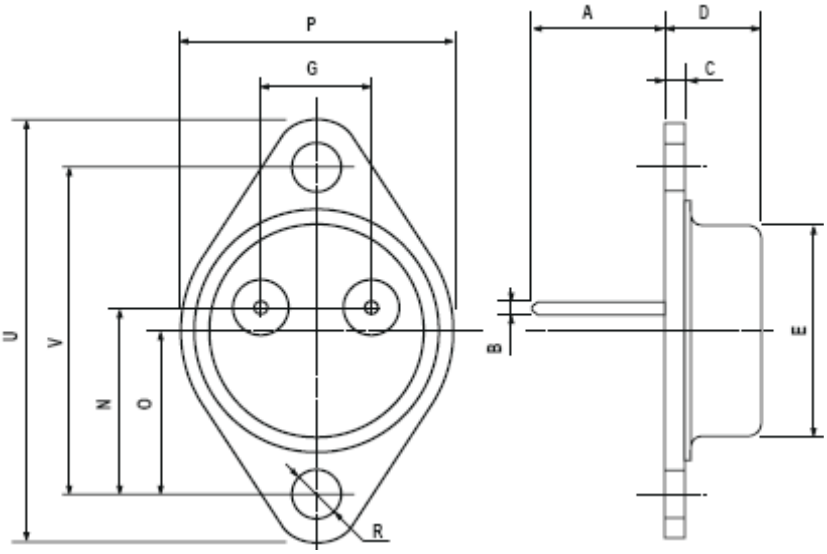
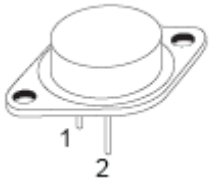
MECHANICAL DATA CASE TO-3

DIMENSIONS (mm)		
	min	max
A	11	13.10
B	0.97	1.15
C	1.5	1.65
D	8.32	8.92
F	19	20
G	10.70	11.1
N	16.50	17.20
P	25	26
R	4	4.09
U	38.50	39.30
V	30	30.30



Pin 1 :	Base
Pin 2 :	Emitter
Case :	Collector



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