

2N3724
2N3725
2N3725A

NPN SILICON TRANSISTOR



TO-39 CASE

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

Collector-Base Voltage
Collector-Emitter Voltage
Emitter-Base Voltage
Continuous Collector Current
Peak Collector Current
Power Dissipation
Power Dissipation ($T_C=25^\circ\text{C}$)
Operating and Storage Junction Temperature



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DESCRIPTION:

The CENTRAL SEMICONDUCTOR 2N3724, 2N3725, 2N3725A types are Silicon NPN Planar Epitaxial Transistors designed for high voltage, high current, high speed switching applications.

MARKING: FULL PART NUMBER

SYMBOL	2N3724	2N3725	2N3725A	UNITS
V_{CBO}	50	80	80	V
V_{CEO}	30	50	50	V
V_{EBO}		6.0		V
I_C		1.2		A
I_{CM}		1.75		A
P_D	0.8	0.8	1.0	W
P_D	3.5	3.5	5.0	W
T_J, T_{stg}		-65 to +200		$^\circ\text{C}$

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

SYMBOL	TEST CONDITIONS	2N3724		2N3725		2N3725A		UNITS
		MIN	MAX	MIN	MAX	MIN	MAX	
I_B	$V_{CE}=50\text{V}$	-	10	-	-	-	-	μA
I_B	$V_{CE}=80\text{V}$	-	-	-	10	-	10	μA
I_{CBO}	$V_{CB}=40\text{V}$	-	1.7	-	-	-	-	μA
I_{CBO}	$V_{CB}=40\text{V}, T_A=100^\circ\text{C}$	-	120	-	-	-	-	μA
I_{CBO}	$V_{CB}=60\text{V}$	-	-	-	1.7	-	0.5	μA
I_{CBO}	$V_{CB}=60\text{V}, T_A=100^\circ\text{C}$	-	-	-	120	-	50	μA
I_{CES}	$V_{CE}=50\text{V}$	-	10	-	-	-	-	μA
I_{CES}	$V_{CE}=80\text{V}$	-	-	-	10	-	10	μA
BV_{CBO}	$I_C=10\mu\text{A}$	50	-	80	-	80	-	V
BV_{CES}	$I_C=10\mu\text{A}$	50	-	80	-	80	-	V
BV_{CEO}	$I_C=10\text{mA}$	30	-	50	-	50	-	V
BV_{EBO}	$I_E=10\mu\text{A}$	6.0	-	6.0	-	6.0	-	V
$V_{CE(SAT)}$	$I_C=10\text{mA}, I_B=1.0\text{mA}$	-	0.25	-	0.25	-	0.25	V
$V_{CE(SAT)}$	$I_C=100\text{mA}, I_B=10\text{mA}$	-	0.20	-	0.26	-	0.26	V
$V_{CE(SAT)}$	$I_C=300\text{mA}, I_B=30\text{mA}$	-	0.32	-	0.40	-	0.40	V
$V_{CE(SAT)}$	$I_C=500\text{mA}, I_B=50\text{mA}$	-	0.42	-	0.52	-	0.52	V
$V_{CE(SAT)}$	$I_C=800\text{mA}, I_B=80\text{mA}$	-	0.65	-	0.80	-	0.80	V
$V_{CE(SAT)}$	$I_C=1.0\text{A}, I_B=100\text{mA}$	-	0.75	-	0.95	-	0.90	V
$V_{BE(SAT)}$	$I_C=10\text{mA}, I_B=1.0\text{mA}$	-	0.76	-	0.76	-	0.76	V
$V_{BE(SAT)}$	$I_C=100\text{mA}, I_B=10\text{mA}$	-	0.86	-	0.86	-	0.86	V
$V_{BE(SAT)}$	$I_C=300\text{mA}, I_B=30\text{mA}$	-	1.1	-	1.1	-	1.0	V
$V_{BE(SAT)}$	$I_C=500\text{mA}, I_B=50\text{mA}$	0.80	1.1	0.80	1.1	0.80	1.1	V
$V_{BE(SAT)}$	$I_C=800\text{mA}, I_B=80\text{mA}$	-	1.5	-	1.5	-	1.3	V
$V_{BE(SAT)}$	$I_C=1.0\text{A}, I_B=100\text{mA}$	-	1.7	-	1.7	0.90	1.4	V

R1 (5-December 2010)

2N3724
2N3725
2N3725A

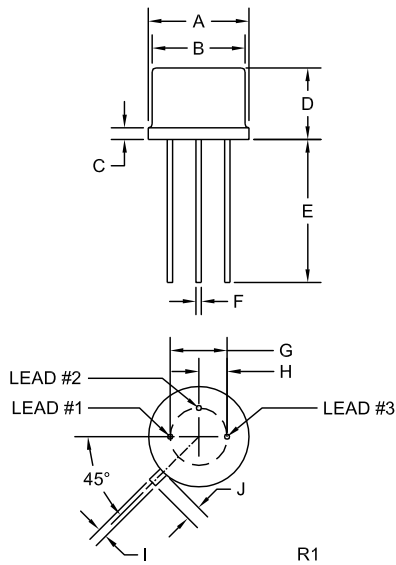
NPN SILICON TRANSISTOR



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

SYMBOL	TEST CONDITIONS	2N3724		2N3725		2N3725A		UNITS
		MIN	MAX	MIN	MAX	MIN	MAX	
h_{FE}	$V_{CE}=1.0\text{V}, I_C=10\text{mA}$	30	-	30	-	30	-	
h_{FE}	$V_{CE}=1.0\text{V}, I_C=100\text{mA}$	60	150	60	150	60	150	
h_{FE}	$V_{CE}=1.0\text{V}, I_C=300\text{mA}$	40	-	40	-	40	-	
h_{FE}	$V_{CE}=1.0\text{V}, I_C=500\text{mA}$	35	-	35	-	35	-	
h_{FE}	$V_{CE}=2.0\text{V}, I_C=800\text{mA}$	25	-	20	-	25	-	
h_{FE}	$V_{CE}=5.0\text{V}, I_C=1.0\text{A}$	30	-	25	-	25	-	
h_{FE}	$V_{CE}=5.0\text{V}, I_C=1.5\text{A}$	-	-	-	-	20	-	
f_T	$V_{CE}=10\text{V}, I_C=50\text{mA}, f=100\text{MHz}$	300	-	300	-	300	-	MHz
C_{ob}	$V_{CB}=10\text{V}, I_E=0, f=1.0\text{MHz}$	-	12	-	10	-	10	pF
C_{ib}	$V_{EB}=0.5\text{V}, I_C=0, f=1.0\text{MHz}$	-	55	-	55	-	55	pF
t_d	$V_{CC}=30\text{V}, I_C=500\text{mA}, I_{B1}=50\text{mA}$	-	10	-	10	-	10	ns
t_r	$V_{CC}=30\text{V}, I_C=500\text{mA}, I_{B1}=50\text{mA}$	-	30	-	30	-	30	ns
t_{on}	$V_{CC}=30\text{V}, I_C=500\text{mA}, I_{B1}=50\text{mA}$	-	35	-	35	-	35	ns
t_s	$V_{CC}=30\text{V}, I_C=500\text{mA}, I_{B1}=I_{B2}=50\text{mA}$	-	50	-	50	-	50	ns
t_f	$V_{CC}=30\text{V}, I_C=500\text{mA}, I_{B1}=I_{B2}=50\text{mA}$	-	25	-	25	-	25	ns
t_{off}	$V_{CC}=30\text{V}, I_C=500\text{mA}, I_{B1}=I_{B2}=50\text{mA}$	-	60	-	60	-	60	ns
t_{on}	$V_{CC}=30\text{V}, I_C=1.0\text{A}, I_{B1}=I_{B2}=100\text{mA}$	-	-	-	-	-	50	ns
t_{off}	$V_{CC}=30\text{V}, I_C=1.0\text{A}, I_{B1}=I_{B2}=100\text{mA}$	-	-	-	-	-	50	ns

TO-39 CASE - MECHANICAL OUTLINE



SYMBOL	DIMENSIONS			
	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A (DIA)	0.335	0.370	8.51	9.40
B (DIA)	0.315	0.335	8.00	8.51
C	-	0.040	-	1.02
D	0.240	0.260	6.10	6.60
E	0.500	-	12.70	-
F (DIA)	0.016	0.021	0.41	0.53
G (DIA)	0.200		5.08	
H	0.100		2.54	
I	0.028	0.034	0.71	0.86
J	0.029	0.045	0.74	1.14

TO-39 (REV: R1)

LEAD CODE:

- 1) Emitter
- 2) Base
- 3) Collector

MARKING:

FULL PART NUMBER

R1 (5-December 2010)