

NPN High Voltage Silicon Switching Transistor

**2N3724
2N3725**



TO-39

**TO-39
Metal Can Package
RoHS compliant**

FEATURE:

1. This product is available in AEC-Q101 Compliant and PPAP Capable also.

Note: For AEC-Q101 compliant products, please use suffix -AQ in the part number while ordering.

ABSOLUTE MAXIMUM RATINGS (Ta = 25 °C Unless otherwise specified)

PARAMETER	SYMBOL	2N3724	2N3725	UNIT
Collector Emitter Voltage	V _{CEO}	30	50	V
Collector Base Voltage	V _{CBO}	50	80	V
Emitter Base Voltage	V _{EBO}	6.0		V
Collector Current - Continuous	I _C	1.0		A
Power Dissipation @ T _A =25°C	P _D	1.0		W
Derate Above 25°C		5.71		mW/°C
Power Dissipation@ T _C =25°C	P _D	5.0		W
Derate Above 25°C		28.6		mW/°C
Operating And Storage Junction Temperature Range	T _J , T _{stg}	-65 to +200		°C

ELECTRICAL CHARACTERISTICS at (Ta = 25 °C Unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN/ MAX	2N3724	2N3725	UNIT
Collector Emitter Voltage	V _{CEO} ¹	I _C =10mA, I _B =0	Min	30	50	V
Collector Emitter Voltage	V _{CES}	I _C =10μA, V _{BE} =0	Min	50	80	V
Collector Base Voltage	V _{CBO}	I _C =10μA, I _E =0	Min	50	80	V
Emitter Base Voltage	V _{EBO}	I _E =10μA, I _C =0	Min	6.0		V
Collector Cut Off Current.	I _{CBO}	V _{CB} =40V, I _E =0	Max	1.7	--	μA
		V _{CB} =60V, I _E =0	Max	--	1.7	μA
		V _{CB} =40V, I _E =0, T _A =100°C	Max	120	--	μA
		V _{CB} =60V, I _E =0, T _A =100° C	Max	--	120	μA
Collector Cut Off Current	I _{CES}	V _{CE} =50V, V _{EB} =0	Max	10	--	μA
		V _{CE} =80V, V _{EB} =0	Max	--	10	μA
Base Current	I _B	V _{CE} =50V, V _{EB} =0	Max	10	--	μA
		V _{CE} =80V, V _{EB} =0	Max	--	10	μA

ELECTRICAL CHARACTERISTICS at (Ta = 25 °C Unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN/ MAX	2N3724	2N3725	UNIT
DC Current Gain	h_{FE}^1	$I_C=10mA, V_{CE}=1V$	Min	30		
		$I_C=100mA, V_{CE}=1V$		60~150		
		$I_C=300mA, V_{CE}=1V$	Min	40		
		$I_C=500mA, V_{CE}=1V$	Min	35		
		$I_C=800mA, V_{CE}=2V$	Min	25	20	
		$I_C=1A, V_{CE}=5V$	Min	30	25	
		$I_C=100mA, V_{CE}=1V, T_A = -55^\circ C$	Min	30		
		$I_C=500mA, V_{CE}=1V, T_A = -55^\circ C$	Min	20		
Collector Emitter Saturation Voltage	$V_{CE(Sat)}^1$	$I_C=10mA, I_B=1mA$	Max	0.25		V
		$I_C=100mA, I_B=10mA$	Max	0.20	0.26	V
		$I_C=300mA, I_B=30mA$	Max	0.32	0.40	V
		$I_C=500mA, I_B=50mA$	Max	0.42	0.52	V
		$I_C=800mA, I_B=80mA$	Max	0.65	0.80	V
		$I_C=1mA, I_B=100mA$	Max	0.75	0.95	V
Base Emitter Saturation Voltage	$V_{BE(Sat)}^1$	$I_C=10mA, I_B=1mA$	Max	0.76		V
		$I_C=100mA, I_B=10mA$	Max	0.86		V
		$I_C=300mA, I_B=30mA$	Max	1.1		V
		$I_C=500mA, I_B=50mA$		0.8~1.1		V
		$I_C=800mA, I_B=80mA$	Max	1.5		V
		$I_C=1mA, I_B=100mA$	Max	1.7		V

SMALL SIGNAL CHARACTERISTICS

Current Gain Bandwidth Product	f_T^2	$I_C=50mA, V_{CE}=10V, f=100MHz$	Min	100		MHz
Output Capacitance	C_{obo}	$V_{CB}=10V, I_E=0, f=1MHz$	Max	12	10	pF
Input Capacitance	C_{ibo}	$V_{EB}=0.5V, I_C=0, f=1MHz$	Typ	85		pF

SWITCHING CHARACTERISTICS

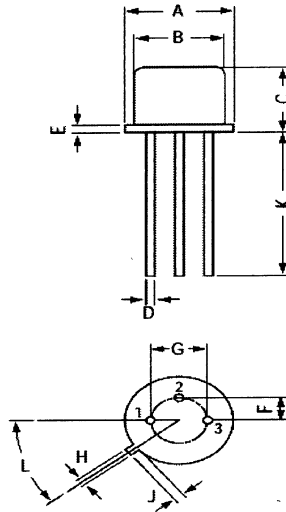
PARAMETER	SYMBOL	TEST CONDITIONS	Min.	Max.	UNIT
Delay Time	t_d	$V_{CC}=30V, V_{BE(Off)}=3.8V, I_C=500mA, I_{B1}=50mA$	--	10	ns
Rise Time	t_r		--	30	ns
Turn On Time	t_{on}		--	35	ns
Storage Time	t_s	$V_{CC}=30V, I_C=500mA, I_{B1}=I_{B2}=50mA$	--	50	ns
Fall Time	t_f		--	25	ns
Turn Off Time	t_{off}		--	60	ns

Note:

1. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 1\%$
2. $f_T = I_{hfe} / f_{test}$

PACKAGE DETAILS

TO-39 Metal Can Package



DIM	MIN	MAX
A	8.50	9.39
B	7.74	8.50
C	6.09	6.60
D	0.40	0.53
E	--	0.88
F	2.41	2.66
G	4.82	5.33
H	0.71	0.86
J	0.73	1.02
K	12.700	--
L	42°	48°

All dimensions are in mm

PIN CONFIGURATION

1. Emitter
2. Base
3. Collector

