

CentralTM Semiconductor Corp.

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Manufacturers of World Class Discrete Semiconductors

2N3724
2N3725
2N3725A

NPN SILICON TRANSISTOR

JEDEC TO-39 CASE

DESCRIPTION

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

MAXIMUM RATINGS (T_A = 25°C)

	SYMBOL	2N3724	2N3725	2N3725A	UNITS
Collector-Base Voltage	V _{CB0}	50	80	80	V
Collector-Emitter Voltage	V _{CEO}	30	50	50	V
Emitter-Base Voltage	V _{EBO}	6.0	6.0	6.0	V
Collector Current	I _C	1.2	1.2	1.2	A
Collector Current (Peak)	I _{CM}	1.75	1.75	1.75	A
Power Dissipation	P _D	0.8	0.8	1.0	W
Power Dissipation (T _C = 25°C)	P _D	3.5	3.5	5.0	W
Operating and Storage Junction Temperature	T _J , T _{stg}	-65 to +200			°C

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

SYMBOL	TEST CONDITIONS	2N3724		2N3725		2N3725A		UNIT
		MIN	MAX	MIN	MAX	MIN	MAX	
I _B	V _{CE} = 50V		10		-		-	uA
I _B	V _{CE} = 80V		-		10		10	uA
I _{CBO}	V _{CB} = 40V		1.7		-		-	uA
I _{CBO}	V _{CB} = 40V, T _A = 100°C		120		-		-	uA
I _{CBO}	V _{CB} = 60V		-		1.7		0.5	uA
I _{CBO}	V _{CB} = 60V, T _A = 100°C		-		120		50	uA
I _{CES}	V _{CE} = 50V		10		-		-	uA
I _{CES}	V _{CE} = 80V		-		10		10	uA
BV _{EBO}	I _E = 10uA	6.0		6.0		6.0		V
BV _{CB0}	I _C = 10uA	50		80		80		V
BV _{CES}	I _C = 10uA	50		80		80		V
BV _{CEO}	I _C = 10mA	30		50		50		V
V _{CE(SAT)}	I _B = 1.0mA, I _C = 10mA		0.25		0.25		0.25	V
V _{CE(SAT)}	I _B = 10mA, I _C = 100mA		0.20		0.26		0.26	V
V _{CE(SAT)}	I _B = 30mA, I _C = 300mA		0.32		0.40		0.40	V
V _{CE(SAT)}	I _B = 50mA, I _C = 500mA		0.42		0.52		0.52	V
V _{CE(SAT)}	I _B = 80mA, I _C = 800mA		0.65		0.80		0.80	V
V _{CE(SAT)}	I _B = 100mA, I _C = 1.0A		0.75		0.95		0.90	V

ELECTRICAL CHARACTERISTICS (Continued)

SYMBOL	TEST CONDITIONS	2N3724		2N3725		2N3725A		UNITS
		MIN	MAX	MIN	MAX	MIN	MAX	
$V_{BE(SAT)}$	$I_B = 1.0mA, I_C = 10mA$	0.76		0.76		0.76		V
$V_{BE(SAT)}$	$I_B = 10mA, I_C = 100mA$	0.86		0.86		0.86		V
$V_{BE(SAT)}$	$I_B = 30mA, I_C = 300mA$		1.1		1.1		1.0	V
$V_{BE(SAT)}$	$I_B = 50mA, I_C = 500mA$	0.80	1.1	0.80	1.1	0.80	1.1	V
$V_{BE(SAT)}$	$I_B = 80mA, I_C = 800mA$		1.5		1.5		1.3	V
$V_{BE(SAT)}$	$I_B = 100mA, I_C = 1.0A$		1.7		1.7	0.9	1.4	V
h_{FE}	$V_{CE} = 1.0V, I_C = 10mA$	30		30		30		
h_{FE}	$V_{CE} = 1.0V, I_C = 100mA$	60	150	60	150	60	150	
h_{FE}	$V_{CE} = 1.0V, I_C = 300mA$	40		40		40		
h_{FE}	$V_{CE} = 1.0V, I_C = 500mA$	35		35		35		
h_{FE}	$V_{CE} = 2.0V, I_C = 800mA$	25		20		25		
h_{FE}	$V_{CE} = 5.0V, I_C = 1.0A$	30		25		25		
h_{FE}	$V_{CE} = 5.0V, I_C = 1.5A$		-		-	20		
f_T	$V_{CE} = 10V, I_C = 50mA, f = 100MHz$	300		300		300		MHz
C_{ob}	$V_{CB} = 10V, I_E = 0, f = 1MHz$		12		10		10	pF
C_{ib}	$V_{EB} = 10V, I_C = 0, f = 1MHz$		55		55		55	pF
t_d	$V_{CC} = 30V, I_C = 500mA, I_{B1} = 50mA$		10		10		10	ns
t_r	$V_{CC} = 30V, I_C = 500mA, I_{B1} = 50mA$		30		30		30	ns
t_{on}	$V_{CC} = 30V, I_C = 500mA, I_{B1} = 50mA$		35		35		35	ns
t_s	$V_{CC} = 30V, I_C = 500mA, I_{B1} = I_{B2} = 50mA$		50		50		50	ns
t_f	$V_{CC} = 30V, I_C = 500mA, I_{B1} = I_{B2} = 50mA$		25		30		30	ns
t_{off}	$V_{CC} = 30V, I_C = 500mA, I_{B1} = I_{B2} = 50mA$		60		60		60	ns
t_{on}	$V_{CC} = 30V, I_C = 1.0A, I_{B1} = I_{B2} = 100mA$		-		-		50	ns
t_{off}	$V_{CC} = 30V, I_C = 1.0A, I_{B1} = I_{B2} = 100mA$		-		-		50	ns

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