

2N3725A

EPITAXIAL PLANAR NPN

HIGH-VOLTAGE, HIGH-CURRENT SWITCH

ABSOLUTE MAXIMUM RATINGS

V_{CB0}	Collector-base voltage ($I_E = 0$)	80	V
V_{CES}	Collector-emitter voltage ($V_{BE} = 0$)	80	V
V_{CEO}	Collector-emitter voltage ($I_B = 0$)	50	V
V_{EBO}	Emitter-base voltage ($I_C = 0$)	6	V
I_C	Collector current	1	A
P_{tot}	Total power dissipation at $T_{amb} \leq 25^\circ\text{C}$ at $T_{case} \leq 25^\circ\text{C}$	0.8 3.5	W W
T_{slg}, T_j	Storage and junction temperature	-65 to 200	$^\circ\text{C}$

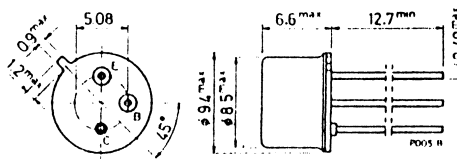
THERMAL DATA

$R_{th\ j-case}$	Thermal resistance junction-case	max	50	$^\circ\text{C/W}$
$R_{th\ j-amb}$	Thermal resistance junction-ambient	max	220	$^\circ\text{C/W}$

MECHANICAL DATA

Dimensions in mm

Collector connected to case



TO-39



ELECTRICAL CHARACTERISTICS ($T_{amb} = 25^{\circ}\text{C}$ unless otherwise specified)

Parameter		Test conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector cutoff current ($I_E = 0$)	$V_{CB} = 60\text{V}$ $V_{CB} = 60\text{V}$ $T_{amb} = 100^{\circ}\text{C}$			1.7 120	μA μA
$V_{(BR)CBO}$	Collector-base breakdown voltage ($I_E = 0$)	$I_C = 10\mu\text{A}$	80			V
$V_{(BR)CES}$	Collector-emitter breakdown voltage ($V_{BE} = 0$)	$I_C = 10\mu\text{A}$	80			V
$V_{(BR)CEO}^*$	Collector-emitter breakdown voltage ($I_B = 0$)	$I_C = 10\text{mA}$	50			V
$V_{(BR)EBO}$	Emitter-base breakdown voltage ($I_C = 0$)	$I_E = 10\mu\text{A}$	6			V
$V_{CE(sat)}^*$	Collector-emitter saturation voltage	$I_C = 10\text{mA}$ $I_B = 1\text{mA}$	0.19	0.25		V
		$I_C = 100\text{mA}$ $I_B = 10\text{mA}$	0.21	0.26		V
		$I_C = 300\text{mA}$ $I_B = 30\text{mA}$	0.31	0.4		V
		$I_C = 500\text{mA}$ $I_B = 50\text{mA}$	0.4	0.52		V
		$I_C = 800\text{mA}$ $I_B = 80\text{mA}$	0.5	0.8		V
		$I_C = 1000\text{mA}$ $I_B = 100\text{mA}$	0.6	0.95		V
$V_{BE(sat)}^*$	Base-emitter saturation voltage	$I_C = 10\text{mA}$ $I_B = 1\text{mA}$	0.64	0.76		V
		$I_C = 100\text{mA}$ $I_B = 10\text{mA}$	0.75	0.86		V
		$I_C = 300\text{mA}$ $I_B = 30\text{mA}$	0.89	1.1		V
		$I_C = 500\text{mA}$ $I_B = 50\text{mA}$	0.9	1.2		V
		$I_C = 800\text{mA}$ $I_B = 80\text{mA}$	1.0	1.5		V
		$I_C = 1000\text{mA}$ $I_B = 100\text{mA}$	1.1	1.7		V
h_{FE}^*	DC current gain	$I_C = 10\text{mA}$ $V_{CE} = 1\text{V}$	30	60		—
		$I_C = 100\text{mA}$ $V_{CE} = 1\text{V}$	60	90	150	—
		$I_C = 300\text{mA}$ $V_{CE} = 1\text{V}$	40	60		—
		$I_C = 1000\text{mA}$ $V_{CE} = 5\text{V}$	25	65		—
		$I_C = 800\text{mA}$ $V_{CE} = 2\text{V}$	20	40		—
		$I_C = 500\text{mA}$ $V_{CE} = 1\text{V}$	35			—
h_{fe}	High frequency current gain	$I_C = 50\text{mA}$ $V_{CE} = 10\text{V}$ $f = 100\text{MHz}$	3			—
C_{CBO}	Collector-base capacitance	$I_E = 0$ $V_{CB} = 10\text{V}$ $f = 1\text{MHz}$			10	pF
C_{EBO}	Emitter-base capacitance	$I_C = 0$ $V_{CB} = 0.5\text{V}$ $f = 1\text{MHz}$			55	pF
t_{on}^{**}	Turn-on time	$I_C = 500\text{mA}$ $V_{CC} = 30\text{V}$ $I_B = 50\text{mA}$		35		ns
t_{off}^{**}	Turn off time	$I_C = 500\text{mA}$ $V_{CC} = 30\text{V}$ $I_{B1} = -I_{B2} = 50\text{mA}$		60		ns

* Pulsed: pulse duration = 300 μs , duty cycle = 1%.