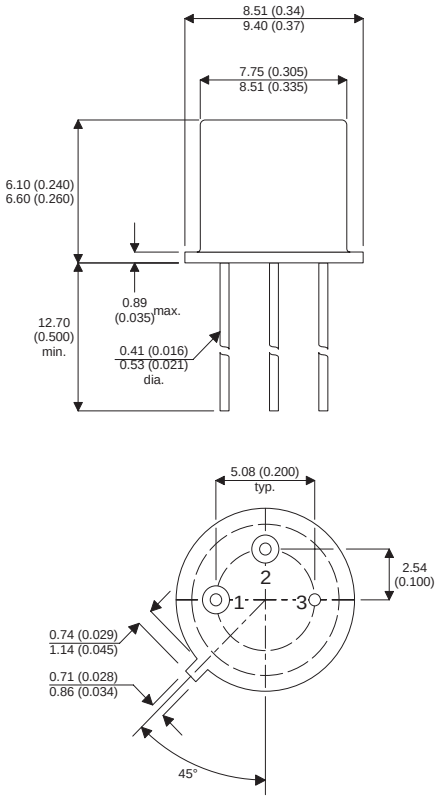
2N3725

HIGH VOLTAGE, HIGH CURRENT, HIGH SPEED, NPN SWITCHING TRANSISTOR IN A HERMETICALLY SEALED TO-39 METAL PACKAGE FOR HIGH RELIABILITY APPLICATIONS

MECHANICAL DATA
Dimensions in mm (inches)



TO-39 METAL
(TO205AD)

PIN OUTS

PIN 1 – Emitter PIN 2 – Base PIN 3 – Collector

FEATURES

- **SILICON PLANAR EPITAXIAL NPN TRANSISTOR**
- **HERMETIC METAL PACKAGE**
- **CECC SCREENING OPTIONS**
- **SPACE QUALITY LEVELS OPTIONS**
- **JAN LEVEL SCREENING OPTIONS**
- **HIGH SPEED SATURATED SWITCHING**

APPLICATIONS:

Hermetically sealed 2N3725 for high reliability applications. Suitable for memory application.

ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25°C unless otherwise stated)

V_{CBO}	Collector-base Voltage (I_E = 0)	80V
V_{CES}	Collector-emitter Voltage (V_{BE} = 0)	80V
V_{CEO}	Collector-emitter Voltage (I_B = 0)	50V
V_{EBO}	Emitter-base Voltage (I_C = 0)	6V
I_C	Collector Current	1A
P_{tot}	Total Power Dissipation at $T_{amb} \leq 25$ °C	0.8W
	at $T_{case} \leq 25$ °C	3.5W
T_j	Junction Temperature	– 65 to 200 °C
T_{stg}	Storage Temperature	– 65 to 200 °C

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ELECTRICAL CHARACTERISTICS (T_{amb} = 25°C unless otherwise stated)

Parameter		Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cutoff Current (I_E = 0)	V_{CB} = 60 V			1.7	µA
		V_{CB} = 60 V T_{amb} = 100 `C			120	
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage (I_E = 0)	I_C = 10 µA	80			V
$V_{(BR)CES}$	Collector-Emitter Breakdown Voltage (V_{BE} = 0)	I_C = 10 µA	80			V
$V_{(BR)CEO}$*	Collector-Emitter Breakdown Voltage (I_B = 0)	I_C = 10 mA	50			V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage (I_C = 0)	I_E = 10 µA	6			V
$V_{CE(sat)}$ *	Collector-Emitter Saturation Voltage	I_C = 10 mA I_B = 1 mA		0.19	0.25	V
		I_C = 100 mA I_B = 10 mA		0.21	0.26	
		I_C = 300 mA I_B = 30 mA		0.31	0.4	
		I_C = 500 mA I_B = 50 mA		0.4	0.52	
		I_C = 800 mA I_B = 80 mA		0.5	0.8	
		I_C = 1000 mA I_B = 100 mA		0.6	0.95	
$V_{BE(sat)}$ *	Base-Emitter Saturation Voltage	I_C = 10 mA I_B = 1 mA		0.64	0.76	V
		I_C = 100 mA I_B = 10 mA		0.75	0.86	
		I_C = 300 mA I_B = 30 mA		0.89	1.1	
		I_C = 500 mA I_B = 50 mA	0.9		1.2	
		I_C = 800 mA I_B = 80 mA		1.0	1.5	
		I_C = 1000 mA I_B = 100 mA		1.1	1.7	
h_{FE}*	DC Current Gain	I_C = 10 mA V_{CE} = 1 V	30	60		
		I_C = 100 mA V_{CE} = 1 V	60	90	150	
		I_C = 300 mA V_{CE} = 1 V	40	60		
		I_C = 1000 mA V_{CE} = 5 V	25	65		
		I_C = 800 mA V_{CE} = 2 V	20	40		
		I_C = 500 mA V_{CE} = 1 V	35			
h_{fe}	High Frequency Current Gain (f = 100Mhz)	I_C = 50 mA V_{CE} = 10 V	3			
C_{CBO}	Collector-Base Capacitance (f = 1Mhz)	I_E = 0 V_{CB} = 10 V			10	pF
C_{EBO}	Emitter-Base Capacitance (f = 1Mhz)	I_C = 0 V_{CB} = 0.5 V			55	pF
t_{on}	Turn-on Time	I_C = 500 mA V_{CC} = 30 V I_B = 50 mA			35	ns
t_{off}	Turn off Time	I_C = 500 mA V_{CC} = 30 V I_{B1} = – I_{B2} = 50 mA			60	ns

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

THERMAL DATA (T_{case} = 25°C unless otherwise stated)

Parameter		Test Conditions	Min.	Typ.	Max.	Unit
$R_{th\ j\text{-}case}$	Thermal Resistance Junction-Case				50	°C/W
$R_{th\ j\text{-}amb}$	Thermal Resistance Junction-Ambient				220	°C/W

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