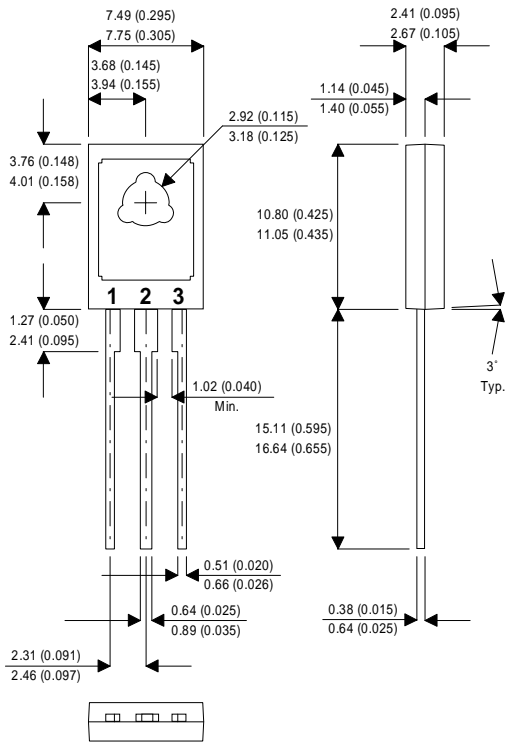


MECHANICAL DATA

Dimensions in mm (inches)

**SILICON NPN
EPITAXIAL PLANAR
POWER TRANSISTOR**



TO 126 Package

Pin 1 - Base Pin 2 - Collector Pin 3 - Emitter

ABSOLUTE MAXIMUM RATINGS

($T_{case} = 25^{\circ}C$ unless otherwise stated)

		SMX35	SMX36	SMX37
V_{CBO}	Collector - Base Voltage (Open Emitter)	100V	120V	140V
V_{CES}	Collector - Emitter Voltage ($V_{BE} = 0$)	100V	120V	140V
V_{CEO}	Collector - Emitter Voltage (Open Base)	60V	70V	75V
V_{EBO}	Collector - Emitter Voltage (Open Base)		5V	
I_C	Collector Current		5A	
I_{CM}	Peak Collector Current		8A	
I_B	Base Current		1A	
I_{BM}	Peak Base Current		2A	
$-I_{BM}$	Peak Reverse Base Current		2A	
P_{tot}	Power Dissipation	$T_{amb} \leq 75^{\circ}C$	14W	
P_{tot}	Power Dissipation	$T_{amb} \leq 25^{\circ}C$	1.25W	
T_{stg}	Storage Temperature Range		-65 to 150°C	
T_j	Maximum Junction Temperature		150°C	

ELECTRICAL CHARACTERISTICS ($T_j = 25^\circ\text{C}$ unless otherwise stated)

Parameter	Test Conditions			Min.	Typ.	Max.	Unit
I_{CBO} Collector - Base Cut-off Current	$I_E = 0$	$V_{CB} = 80\text{V}$	SMX35			10	μA
		$T_j = 100^\circ\text{C}$	SMX35			50	μA
	$I_E = 0$	$V_{CB} = 100\text{V}$	SMX36/37			10	μA
		$T_j = 100^\circ\text{C}$	SMX36/37			50	μA
I_{EBO} Emitter Cut-off Current	$I_C = 0$	$V_{EB} = 4\text{V}$			5		nA
		$V_{EB} = 5\text{V}$			10	μA	
	$I_C = 0$	$V_{EB} = 5\text{V}$				1	mA
h_{FE} DC Current Gain	$I_C = 0.5\text{A}$	$V_{CE} = 10\text{V}$	SMX35/36	45	150	450	—
			SMX37	45	80	450	—
$V_{CE(sat)}$ Collector - Emitter Saturation Voltage	$I_C = 5\text{A}$	$I_B = 0.5\text{A}$	SMX35/37			0.9	V
			SMX36			0.7	V
	$I_C = 7\text{A}$	$I_B = 0.7\text{A}$	SMX35/37			1.2	V
$V_{BE(sat)}$ Base - Emitter Saturation Voltage	$I_C = 5\text{A}$	$I_B = 0.5\text{A}$				1.6	V
			$I_C = 7\text{A}$	$I_B = 0.7\text{A}$	SMX35/37		
C_C Collector Capacitance	$I_E = I_e = 0$	$V_{CB} = 10\text{V}$			40	60	pF
f_T Transition Frequency	$I_C = 0.5\text{A}$	$V_{CE} = 5\text{V}$			100		MHz
	$T_{amb} = 25^\circ\text{C}$	$f = 35\text{MHz}$					

SWITCHING CHARACTERISTICS (Between 10% and 90% levels)

Parameter	Test Conditions			Min.	Typ.	Max.	Unit
t_{on} Turn-On Time	$I_{Con} = 1\text{A}$				0.06	0.1	μs
t_{off} Turn-Off Time							
t_{on} Turn-On Time	$I_{Con} = 2\text{A}$					80	ns
t_{off} Turn-Off Time							
t_{on} Turn-On Time	$I_{Con} = 5\text{A}$					180	300
t_{off} Turn-Off Time							

THERMAL RESISTANCE

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$R_{\theta j-mb}$ Thermal Resistance Junction to Mounting Base				5	K / W
$R_{\theta ja}$ Thermal Resistance Junction to Ambient in free air				100	K / W