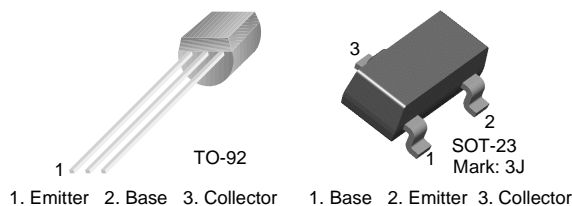




## MPS6515/MMBT6515

### NPN General Purpose Amplifier

- This device is designed as a general purpose amplifier and switch.
- The useful dynamic range extends to 100mA as a switch and to 100MHz as an amplifier.



### Absolute Maximum Ratings\* $T_C=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
$V_{CEO}$	Collector-Emitter Voltage	25	V
$V_{CBO}$	Collector-Base Voltage	40	V
$V_{EBO}$	Emitter-Base Voltage	4.0	V
$I_C$	Collector current - Continuous	200	mA
$T_J, T_{stg}$	Junction and Storage Temperature	-55 ~ +150	$^\circ\text{C}$

\* These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

#### NOTES:

- 1) These ratings are based on a maximum junction temperature of 150 degrees C.
- 2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations

### Electrical Characteristics $T_C=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Max.	Units
<b>Off Characteristics</b>					
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	$I_C = 0.5\text{mA}, I_B = 0$	25		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 10\mu\text{A}, I_E = 0$	40		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_C = 10\mu\text{A}, I_C = 0$	4.0		V
$I_{CBO}$	Collector Cutoff Current	$V_{CE} = 30\text{V}, I_E = 0$		50	nA
$I_{CBO}$	Collector Cutoff Current	$V_{CB} = 30\text{V}, I_E = 0, T = 60^\circ\text{C}$		1.0	$\mu\text{A}$
<b>On Characteristics *</b>					
$h_{FE}$	DC Current Gain	$I_C = 2.0\text{mA}, V_{CE} = 10\text{V}$ $I_C = 100\text{mA}, V_{CE} = 10\text{V}$	250 150	500	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 50\text{mA}, I_B = 5.0\text{mA}$		0.5	V
<b>Small Signal Characteristics</b>					
$C_{obo}$	Output Capacitance	$V_{CB} = 10\text{V}, I_E = 0, f = 100\text{kHz}$		3.5	pF

\* Pulse Test: Pulse Width  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$

### Thermal Characteristics $T_A=25^\circ\text{C}$ unless otherwise noted

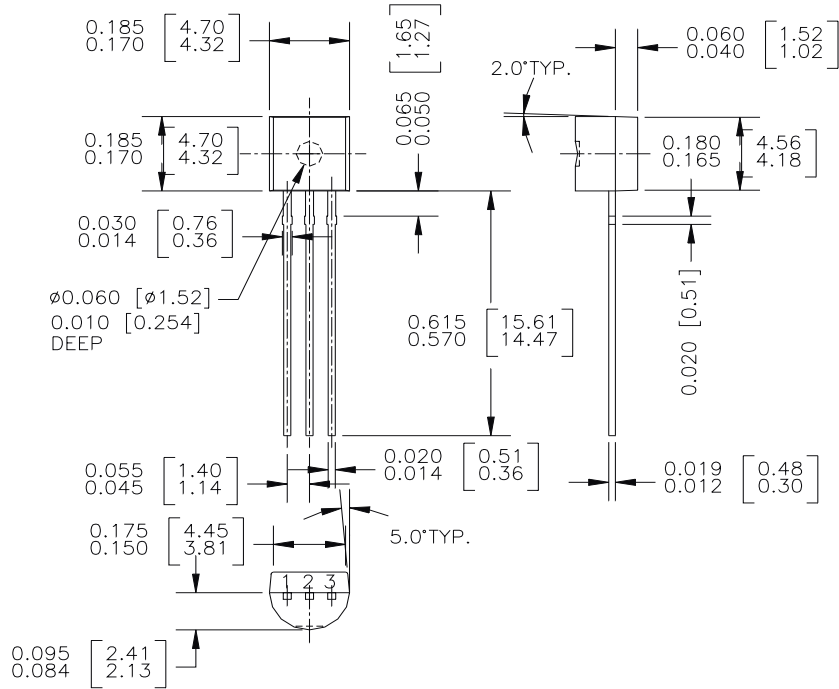
Symbol	Parameter	Max.		Units
		MPS6515	*MMBT6515	
$P_D$	Total Device Dissipation	625	350	mW
	Derate above $25^\circ\text{C}$	5.0	2.8	$\text{mW}/^\circ\text{C}$
$R_{\theta JC}$	Thermal Resistance, Junction to Case	83.3		$^\circ\text{C}/\text{W}$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	200	357	$^\circ\text{C}/\text{W}$

\* Device mounted on FR-4 PCB  $1.6" \times 0.06"$

# Package Dimensions

MPS6515/MMBT6515

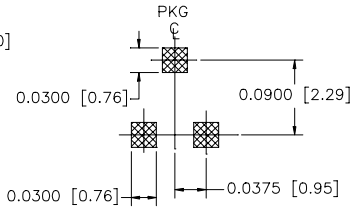
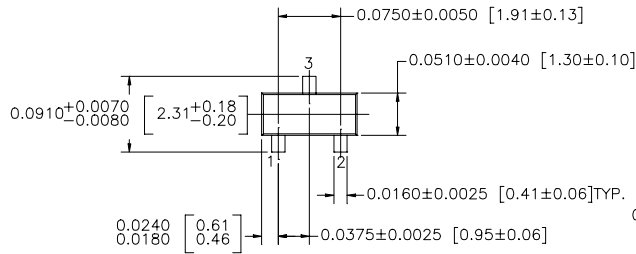
## TO-92



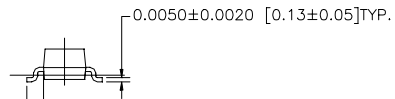
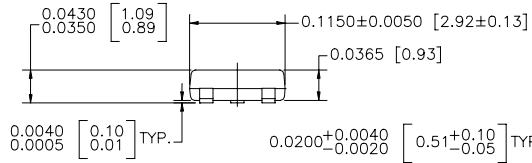
Dimensions in Millimeters

Package Dimensions (Continued)

SOT-23



LAND PATTERN RECOMMENDATION



SOT 23, 3 LEADS LOW PROFILE

CONTROLLING DIMENSION IS INCH  
VALUES IN [ ] ARE MILLIMETERS

NOTE : UNLESS OTHERWISE SPECIFIED

1. STANDARD LEAD FINISH 150 MICROINCHES / 3.81 MICROMETERS  
MINIMUM TIN / LEAD (SOLDER) ON ALLOY 42
2. REFERENCE JEDEC REGISTRATION TO-236, VARIATION AB, ISSUE G, DATED JUL 1993

Dimensions in Millimeters

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