

NPN General-Purpose Amplifier

MPSA05

Features

- This Device is Designed for General-Purpose Amplifier Applications at Collector Currents to 300 mA
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CEO}	Collector-Emitter Voltage	60	V
V_{CBO}	Collector-Base Voltage	60	V
V_{EBO}	Emitter-Base Voltage	4.0	V
I_C	Collector Current - Continuous	500	mA
T_J, T_{STG}	Junction and Storage Temperature	-55 to +150	°C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

THERMAL CHARACTERISTICS

Values are at $T_A = 25^\circ\text{C}$ unless otherwise noted.

Symbol	Parameter	Max.	Unit
P_D	Total Device Dissipation	625	mW
	Derate Above 25°C	5.0	mW/°C
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case	83.3	°C/W
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	200	°C/W

ELECTRICAL CHARACTERISTICS

Values are at $T_A = 25^\circ\text{C}$ unless otherwise noted.

Symbol	Parameter	Conditions	Min.	Max.	Unit
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage (Note 1)	$I_C = 1\text{ mA}, I_B = 0$	60	–	V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 100\text{ }\mu\text{A}, I_C = 0$	4	–	V
I_{CEO}	Collector Cut-Off Current	$V_{CE} = 60\text{ V}, I_B = 0$	–	0.1	μA
I_{CBO}	Collector Cut-Off Current	$V_{CB} = 60\text{ V}, I_E = 0$	–	0.1	μA
h_{FE}	DC Current Gain	$I_C = 10\text{ mA}, V_{CE} = 1.0\text{ V}$	100	–	
		$I_C = 100\text{ mA}, V_{CE} = 1.0\text{ V}$	100	–	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 100\text{ mA}, I_B = 10\text{ mA}$	–	0.25	V
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C = 100\text{ mA}, V_{CE} = 1.0\text{ V}$	–	1.2	V
f_T	Current Gain - Bandwidth Product	$I_C = 10\text{ mA}, V_{CE} = 2\text{ V}, f = 100\text{ MHz}$	100	–	MHz

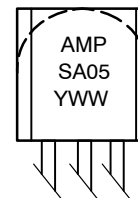
1. Pulse Test: Pulse Width $\leq 300\text{ }\mu\text{s}$, Duty Cycle $\leq 2\%$.



1. Emitter
2. Base
3. Collector

TO-92-3
CASE 135AR
Bent Lead
Tape & Reel

MARKING DIAGRAM



- A = Assembly Location
MPSA05 = Specific Device Code
Y = Year
WW = Work Week

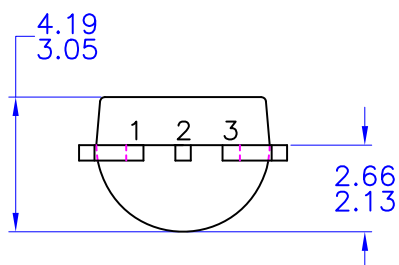
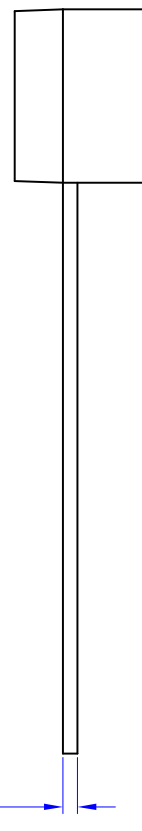
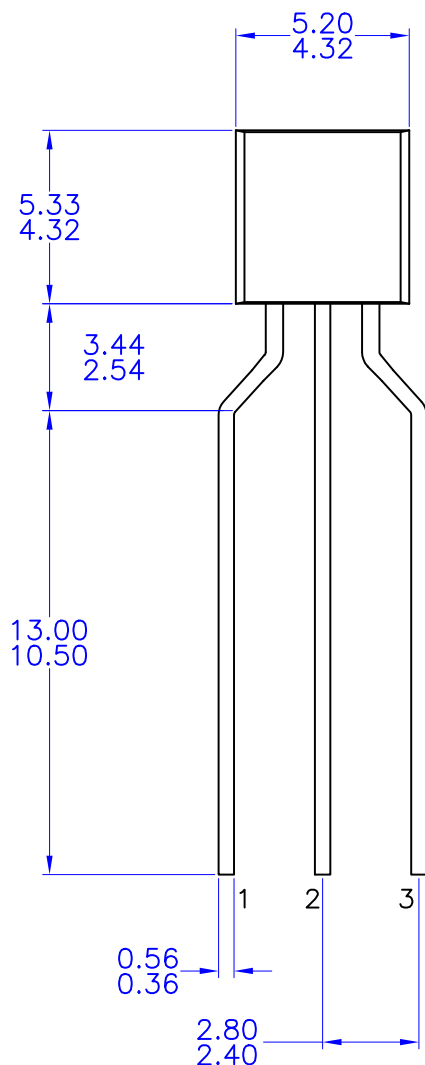
ORDERING INFORMATION

Device	Package	Shipping†
MPSA05RA	TO-92 3L	2000 / Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, [BRD8011/D](#).

TO-92 3 4.83x4.76 LEADFORMED
CASE 135AR
ISSUE O

DATE 30 SEP 2016



NOTES: UNLESS OTHERWISE SPECIFIED

- A) DRAWING WITH REFERENCE TO JEDEC TO-92 RECOMMENDATIONS.
- B) ALL DIMENSIONS ARE IN MILLIMETERS.
- C) DRAWING CONFORMS TO ASME Y14.5M-1994

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