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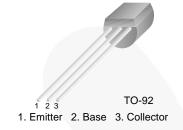


November 2014

KSP2222A NPN General-Purpose Amplifier

Features

- Collector-Emitter Voltage: V_{CEO} = 40 V
- · Available as PN2222A



Ordering Information

Part Number	Marking	Package	Packing Method
KSP2222ABU	KSP2222	TO-92 3L	Bulk
KSP2222ATA	KSP2222	TO-92 3L	Ammo
KSP2222ATF	KSP2222	TO-92 3L	Tape and Reel

Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at $T_A = 25^{\circ}\text{C}$ unless otherwise noted.

Symbol	Parameter	Value	Unit
V _{CBO}	Collector-Base Voltage	75	V
V _{CEO}	Collector-Emitter Voltage	40	V
V _{EBO}	Emitter-Base Voltage	6.0	V
I _C	Collector Current	600	mA
TJ	Junction Temperature	150	°C
T _{STG}	Storage Temperature	-55 to +150	°C

Thermal Characteristics(1)

Values are at $T_A = 25$ °C unless otherwise noted.

Symbol	Parameter	Value	Unit
P _D	Power Dissipation by R _{θJA}	625	mW
	Derate Above 25°C	5	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

Note:

1. PCB size: FR-4, 76 mm x 114 mm x 1.57 mm (3.0 inch x 4.5 inch x 0.062 inch) with minimum land pattern size.

Electrical Characteristics

Values are at $T_A = 25$ °C unless otherwise noted.

Symbol	Parameter	Conditions	Min.	Max.	Unit
BV _{CBO}	Collector-Base Breakdown Voltage	$I_C = 10 \mu\text{A}, I_E = 0$	75		V
BV _{CEO}	Collector-Emitter Breakdown Voltage	$I_C = 10 \text{ mA}, I_B = 0$	40		V
BV _{EBO}	Emitter-Base Breakdown Voltage	$I_E = 10 \mu A, I_C = 0$	6.0		V
I _{CBO}	Collector Cut-Off Current	$V_{CB} = 60 \text{ V}, I_{E} = 0$		0.01	μΑ
I _{EBO}	Emitter Cut-Off Current	$V_{EB} = 3.0 \text{ V}, I_{C} = 0$		10	nA
	DC Current Gain	$V_{CE} = 10 \text{ V}, I_{C} = 0.1 \text{ mA}$	35		
h _{FE}		V _{CE} = 10 V, I _C = 1 mA	50		
		$V_{CE} = 10 \text{ V}, I_{C} = 10 \text{ mA}$	75		
		$V_{CE} = 10 \text{ V}, I_{C} = 150 \text{ mA}^{(2)}$	100	300	
		$V_{CE} = 10 \text{ V}, I_{C} = 500 \text{ mA}^{(2)}$	40		
) /	Collector-Emitter Saturation Voltage ⁽²⁾	I _C = 150 mA, I _B = 15 mA		0.3	V
V _{CE} (sat)	Collector-Emitter Saturation Voltage	$I_C = 500 \text{ mA}, I_B = 50 \text{ mA}$		1.0	
V _{BE} (sat)	Page Emitter Seturation Valtage(2)	I _C = 150 mA, I _B = 15 mA	0.6	1.2	V
	Base-Emitter Saturation Voltage ⁽²⁾	I _C = 500 mA, I _B = 50 mA		2.0	
f _T	Current Gain Bandwidth Product	I _C = 20 mA, V _{CE} = 20 V, f = 100 MHz	300		MHz
C _{ob}	Output Capacitance	V _{CB} = 10 V, I _E = 0, f = 1.0 MHz		8	pF
t _{ON}	Turn-On Time	V _{CC} = 30 V, I _C = 150 mA, I _{B1} = 15 mA, V _{BE(off)} = 0.5 V		35	ns
t _{OFF}	Turn-Off Time	$V_{CC} = 30 \text{ V}, I_{C} = 150 \text{ mA},$ $I_{B1} = I_{B2} = 15 \text{ mA}$		285	ns
NF	Noise Figure	$I_C = 100 \ \mu\text{A}, \ V_{CE} = 10 \ \text{V}, \ R_S = 1 \ \text{k}\Omega, \ f = 1.0 \ \text{kHz}$		4	dB

Note:

2. Pulse test: Pulse width $\leq 300~\mu s,$ duty cycle $\leq 2\%$

Physical Dimensions

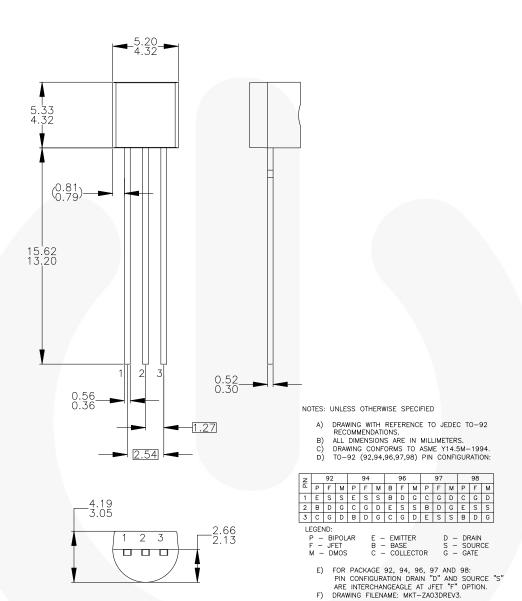
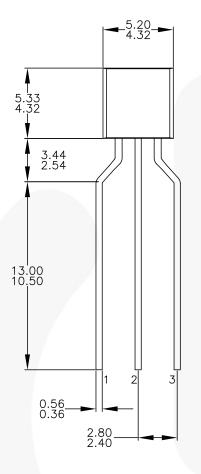
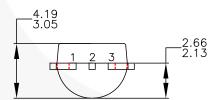


Figure 1. 3-Lead, TO-92, JEDEC TO-92 Compliant Straight Lead Configuration, Bulk Type

Physical Dimensions (Continued)







NOTES: UNLESS OTHERWISE SPECIFIED

- DRAWING CONFORMS TO JEDEC MS-013, VARIATION AC. ALL DIMENSIONS ARE IN MILLIMETERS. DRAWING CONFORMS TO ASME Y14.5M-2009. DRAWING FILENAME: MKT-ZAO3FREV3. FAIRCHILD SEMICONDUCTOR.

Figure 2. 3-Lead, TO-92, Molded, 0.2 In Line Spacing Lead Form, Ammo, Tape and Reel Type





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105318, г. Москва, ул. Щербаковская д. 3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

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moschip.ru moschip.ru_6 moschip.ru 4 moschip.ru 9