NPN Epitaxial Silicon Transistor

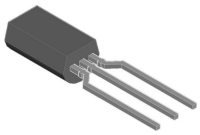
KSC2328A

Features

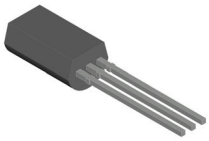
- Audio Power Amplifier Application
- Complement to KSA928A
- 3 W Output Application

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TO−92 3 LF
CASE 135AM



TO−92 3
CASE 135AP

ABSOLUTE MAXIMUM RATINGS

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

Symbol	Parameter	Value	Unit
V_{CBO}	Collector−Base Voltage	30	V
V_{CEO}	Collector−Emitter Voltage	30	V
V_{EBO}	Emitter−Base Voltage	5	V
I_C	Collector Current	2	A
T_J	Junction Temperature	150	°C
T_{STG}	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.

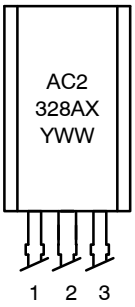
THERMAL CHARACTERISTICS

(Values are at T_A = 25°C unless otherwise noted.) (Note 1)

Symbol	Parameter	Value	Unit
P_D	Power Dissipation	1000	mW
	Derate Above 25°C	8.0	mW/°C
$R_{\theta JA}$	Thermal Resistance, Junction−to−Ambient	125	°C/W

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

MARKING DIAGRAM



1: Emitter
2: Collector
3: Base

A = Assembly Code
C2328A = Device Code
X = O / Y
YWW = Date Code

ORDERING INFORMATION

Device	Package	Shipping
KSC2328AOTA	TO−92 3 LF (Pb−Free)	2000 / Fan−Fold
KSC2328AYBU	TO−92 3 (Pb−Free)	6000 / Bulk Bag
KSC2328AYTA	TO−92 3 LF (Pb−Free)	2000 / Fan−Fold

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ELECTRICAL CHARACTERISTICS

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{CBO}	Collector−Base Breakdown Voltage	I_C = 100 μA, I_E = 0	30	–	–	V
BV_{CEO}	Collector−Emitter Breakdown Voltage	I_C = 10 mA, I_B = 0	30	–	–	V
BV_{EBO}	Emitter−Base Breakdown Voltage	I_E = 1 mA, I_C = 0	5	–	–	V
I_{CBO}	Collector Cut−Off Current	V_{CB} = 30 V, I_E = 0	–	–	100	nA
I_{EBO}	Emitter Cut−Off Current	V_{EB} = 5 V, I_C = 0	–	–	100	nA
h_{FE}	DC Current Gain	V_{CE} = 2 V, I_C = 500 mA	100	–	320	
V_{BE}(on)	Base−Emitter On Voltage	V_{CE} = 2 V, I_C = 500 mA	–	–	1.0	V
V_{CE}(sat)	Collector−Emitter Saturation Voltage	I_C = 1.5 A, I_B = 0.03 A	–	–	2.0	V
f_T	Current Gain Bandwidth Product	V_{CE} = 2 V, I_C = 500 mA	–	120	–	MHz
C_{ob}	Collector Output Capacitance	V_{CB} = 10 V, I_E = 0, f = 1 MHz	–	30	–	pF

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

h_{FE} CLASSIFICATION

Classification	O	Y
h_{FE}	100 ~ 200	160 ~ 320

TYPICAL PERFORMANCE CHARACTERISTICS

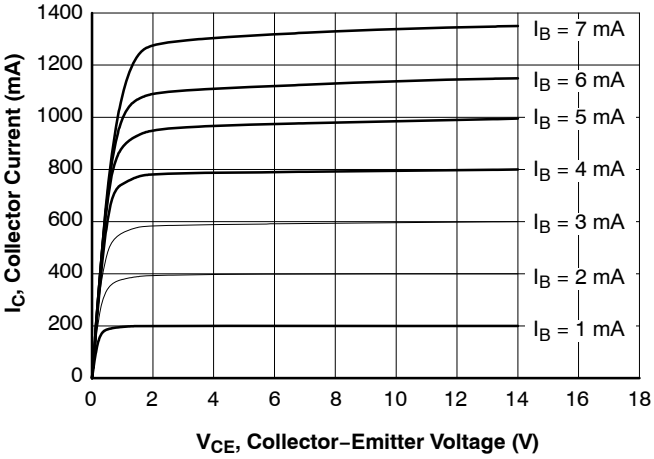


Figure 1. Static Characteristic

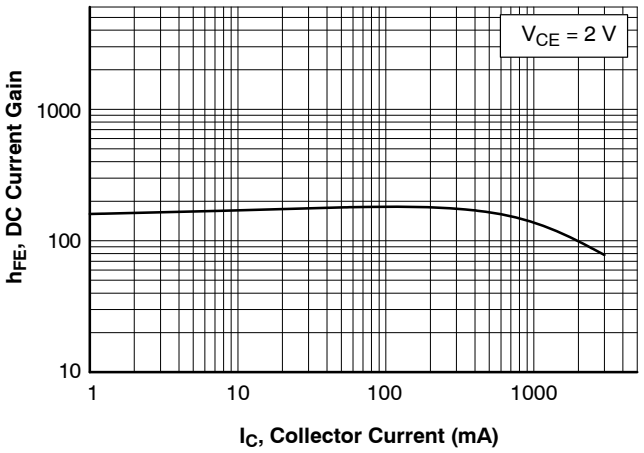


Figure 2. DC Current Gain

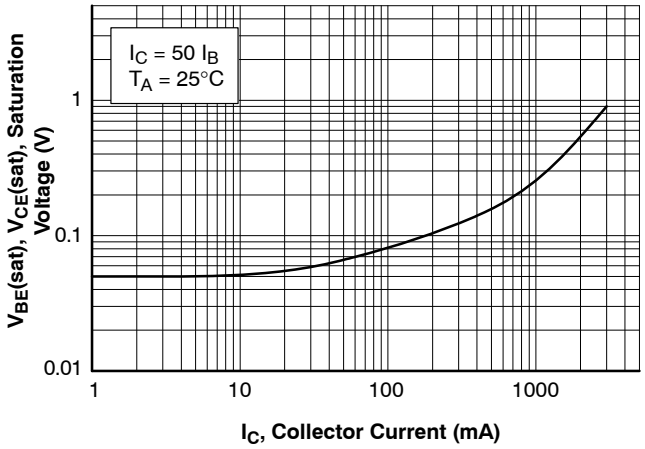


Figure 3. Collector−Emitter Saturation Voltage

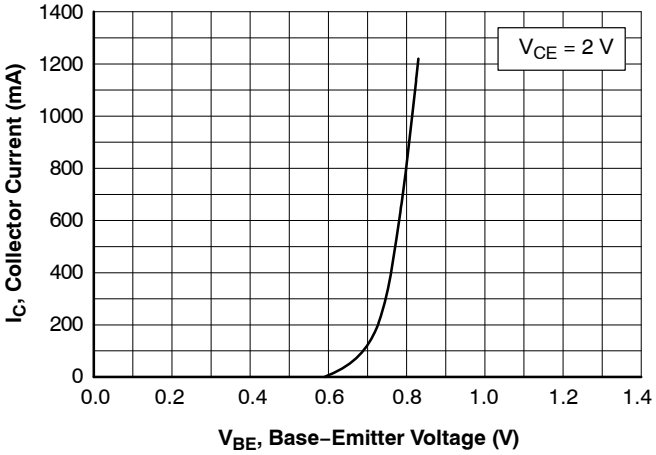


Figure 4. Base−Emitter On Voltage

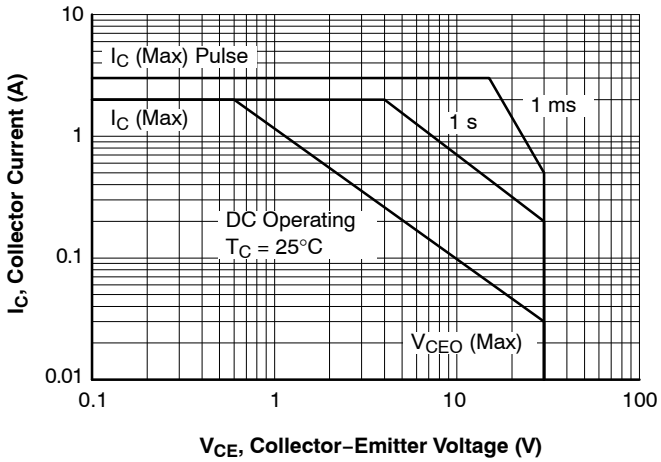


Figure 5. Safe Operating Area

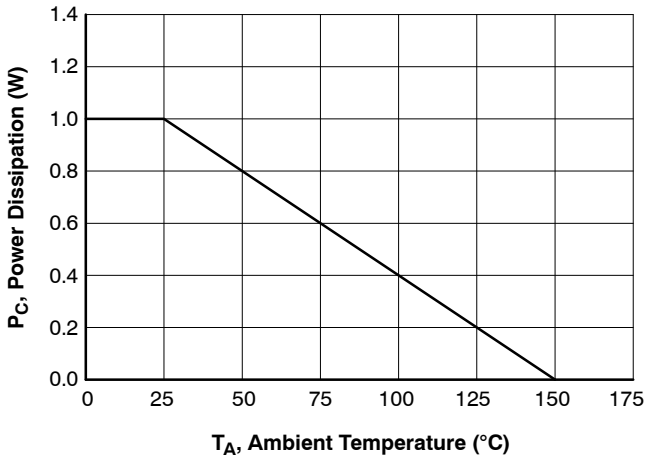
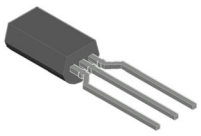
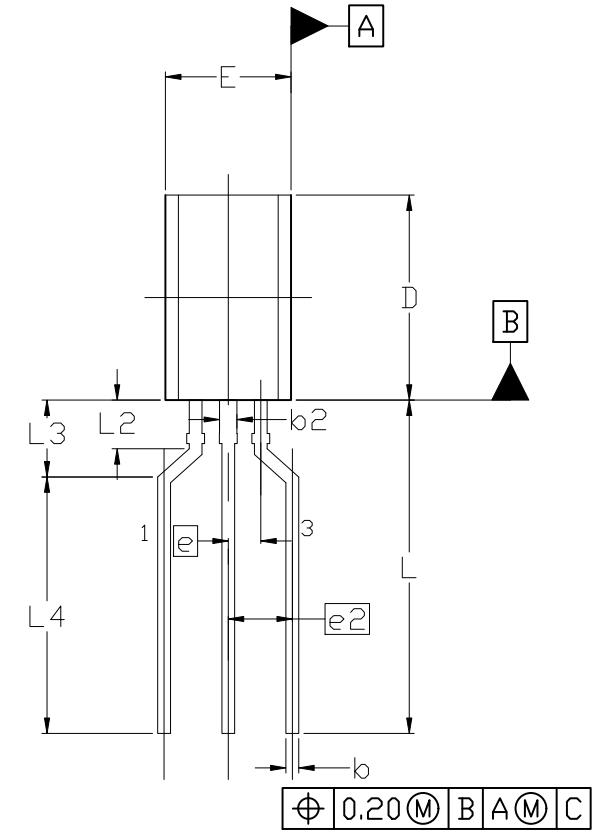


Figure 6. Power Derating

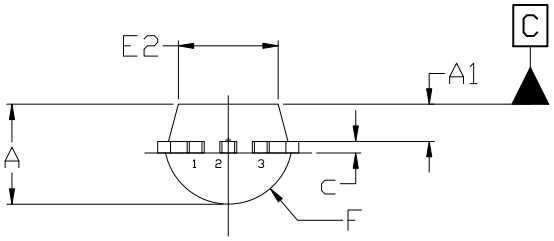


TO−92 3 8.0x4.9 (LEADFORMED)
CASE 135AM
ISSUE B

DATE 14 JAN 2021



TOP VIEW



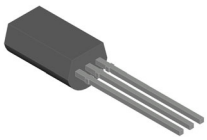
END VIEW

NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2009.
2. CONTROLLING DIMENSION: MILLIMETERS
3. DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH, GATE REMAINS AND TIE BAR PROTRUSIONS.
4. DIMENSION b AND b2 DOES NOT INCLUDE DAMBAR PROTRUSION. DIMENSION b2 LOCATED ABOVE THE DAMBAR PORTION OF MIDDLE LEAD.

	MILLIMETERS		
DIM	MIN.	NOM.	MAX.
A	3.70	3.90	4.10
A1	1.25	1.45	1.65
b	0.35	0.50	0.60
b2	0.62	---	0.78
c	0.35	0.45	0.55
D	7.80	8.00	8.20
E	4.70	4.90	5.10
E2	3.70	3.90	4.10
e	1.27 BSC		
e2	2.50 BSC		
F	2.45 REF		
L	13.00 REF		
L2	1.50	---	1.90
L3	2.60	---	3.40
L4	10.40 REF		

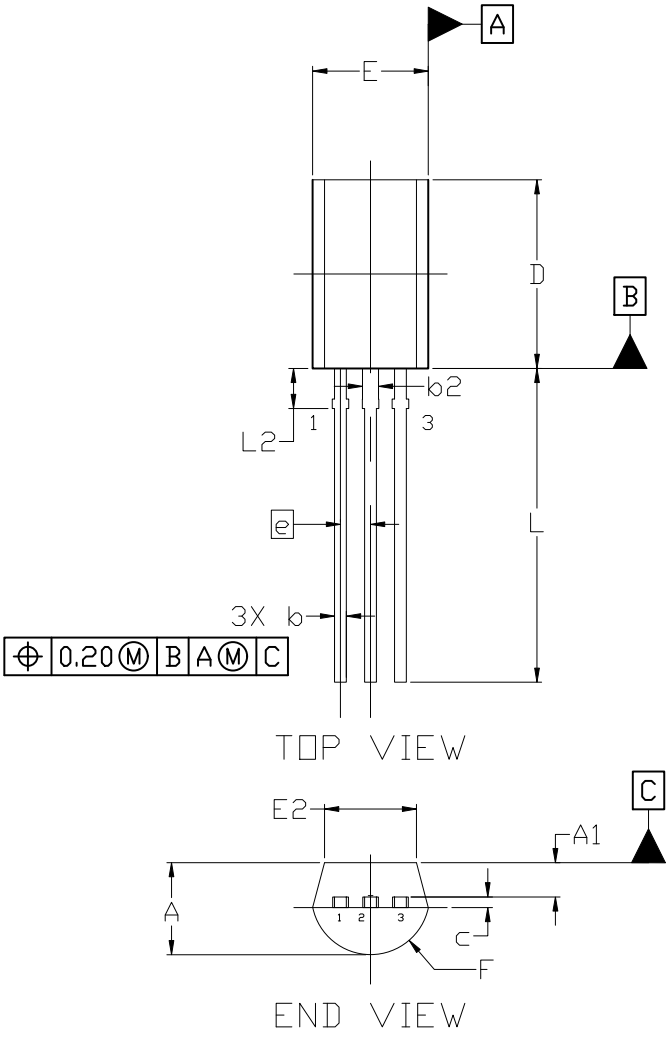
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TO−92 3 8.0x4.9
CASE 135AP
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c	0.35	0.45	0.55
D	7.80	8.00	8.20
E	4.70	4.90	5.10
E2	3.70	3.90	4.10
e	1.27 BSC		
F	2.45 REF		
L	13.30	---	14.20
L2	1.70 REF		

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