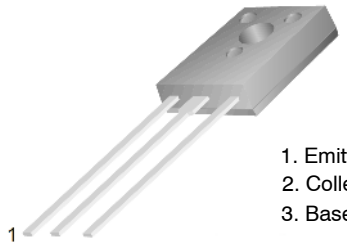
NPN Epitaxial Silicon Transistor

KSC3503



1. Emitter
2. Collector
3. Base

TO−126−3LD
CASE 340AS

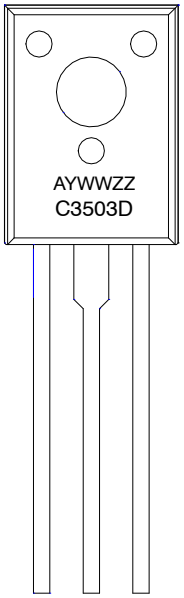
Features

- High Voltage: V_{CEO} = 300 V
- Low Reverse Transfer Capacitance: C_{re} = 1.8 pF at V_{CB} = 30 V
- Excellent Gain Linearity for Low THD
- High Frequency: 150 MHz
- Full Thermal and Electrical Spice Models are Available
- Complement to KSA1381
- These Devices are Pb−Free and are RoHS Compliant

Applications

- Audio, Voltage Amplifier and Current Source
- CRT Display, Video Output
- General Purpose Amplifier

MARKING DIAGRAM



A = Assembly Location
YWW = Date Code
ZZ = Assembly Lot
C3503D = Specific Device Code

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)

Parameter	Symbol	Ratings	Units
Collector−Base Voltage	BV_{CBO}	300	V
Collector−Emitter Voltage	BV_{CEO}	300	V
Emitter−Base Voltage	BV_{EBO}	5	V
Collector Current (DC)	I_C	100	mA
Collector Current (Pulse)	I_{CP}	200	mA
Total Device Dissipation, T_C = 25°C T_C = 125°C	P_C	7 1.2	W W
Junction and Storage Temperature	T_J, T_{STG}	−50 ~ +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 (Note 1)

(T_A = 25°C unless otherwise noted)

Parameter	Symbol	Max.	Units
Thermal Resistance, Junction to Case	$R_{\theta JC}$	17.8	°C/W

1. Device mounted on minimum pad size.

ORDERING INFORMATION

See detailed ordering and shipping information on page 2 of this data sheet.

ELECTRICAL CHARACTERISTICS (Note 2) (T_A = 25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{CBO}	Collector−Base Breakdown Voltage	I_C = 10 μA, I_E = 0	300			V
BV_{CEO}	Collector−Emitter Breakdown Voltage	I_C = 1 mA, I_B = 0	300			V
BV_{EBO}	Emitter−Base Breakdown Voltage	I_E = 10 μA, I_C = 0	5			V
I_{CBO}	Collector Cut−Off Current	V_{CB} = 200 V, I_E = 0			0.1	μA
I_{EBO}	Emitter Cut−Off Current	V_{EB} = 4 V, I_C = 0			0.1	μA
h_{FE}	DC Current Gain	V_{CE} = 10 V, I_C = 10 mA	60		120	
V_{CE}(sat)	Collector−Emitter Saturation Voltage	I_C = 20 mA, I_B = 2 mA			0.6	V
V_{BE}(sat)	Base−Emitter Saturation Voltage	I_C = 20 mA, I_B = 2 mA			1	V
f_T	Current Gain Bandwidth Product	V_{CE} = 30 V, I_C = 10 mA		150		MHz
C_{ob}	Output Capacitance	V_{CB} = 30 V, f = 1 MHz		2.6		pF
C_{ob}	Output Capacitance	V_{CB} = 30 V, f = 1 MHz		1.8		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.

2. Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2%

ORDERING INFORMATION

Part Number*	Marking	Package	Shipping
KSC3503DS	C3503D	TO−126−3LD (Pb−Free)	2000 Units / Bulk Box
KSC3503DSTU	C3503D	TO−126−3LD (Pb−Free)	1920 Units / Tube

*Suffix “−TU” means the tube packing, The Suffix “TU” could be replaced to other suffix character as packing method.

TYPICAL CHARACTERISTICS

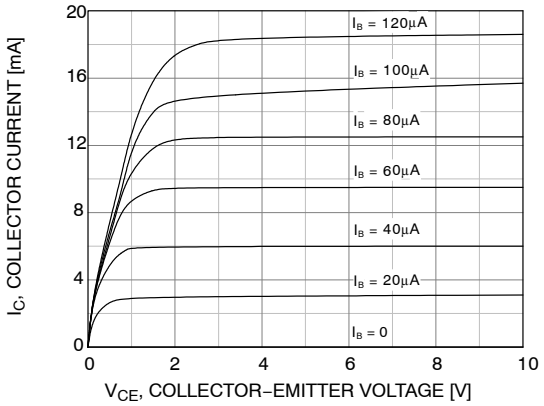


Figure 1. Static Characteristic

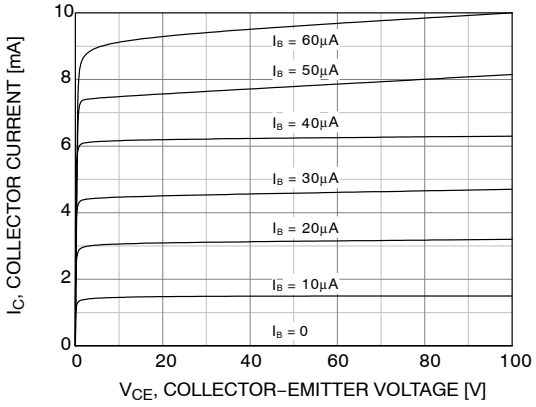


Figure 2. Static Characteristic

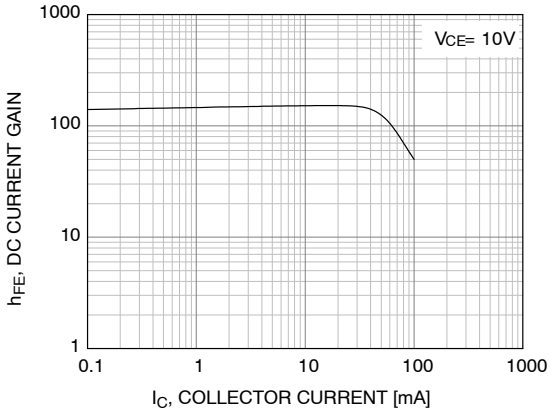


Figure 3. DC Current Gain

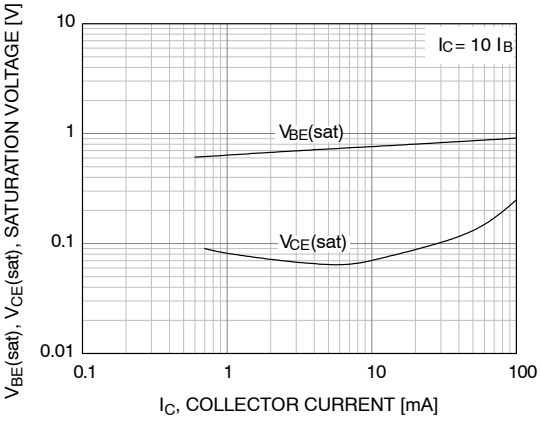


Figure 4. Base−Emitter Saturation Voltage Collector−Emitter Saturation Voltage

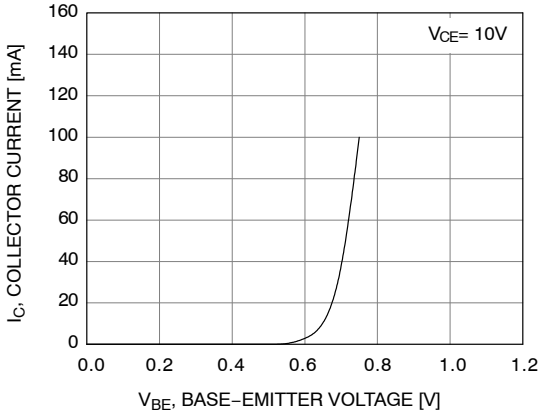


Figure 5. Base−Emitter On Voltage

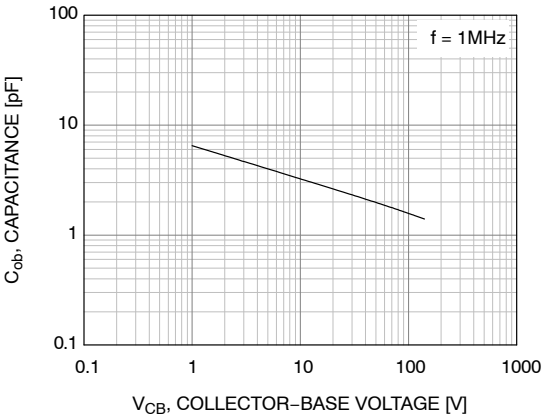


Figure 6. Collector Output Capacitance

TYPICAL CHARACTERISTICS

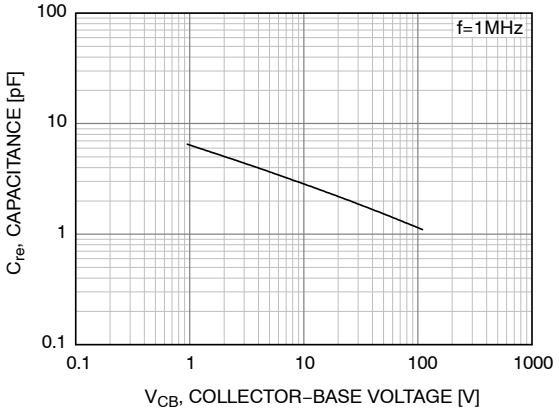


Figure 7. Reverse Transfer Capacitance

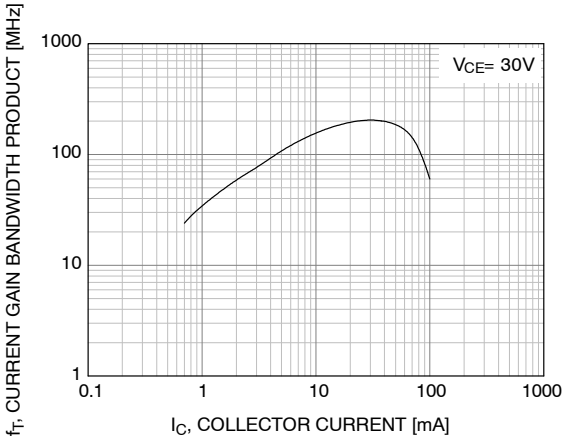


Figure 8. Current Gain Bandwidth Product

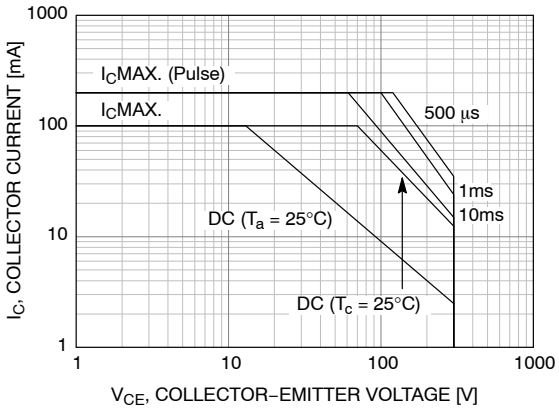


Figure 9. Safe Operating Area

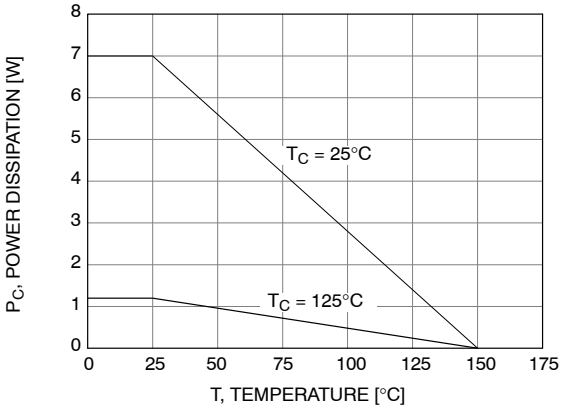


Figure 10. Power Derating

TO−126−3LD
CASE 340AS
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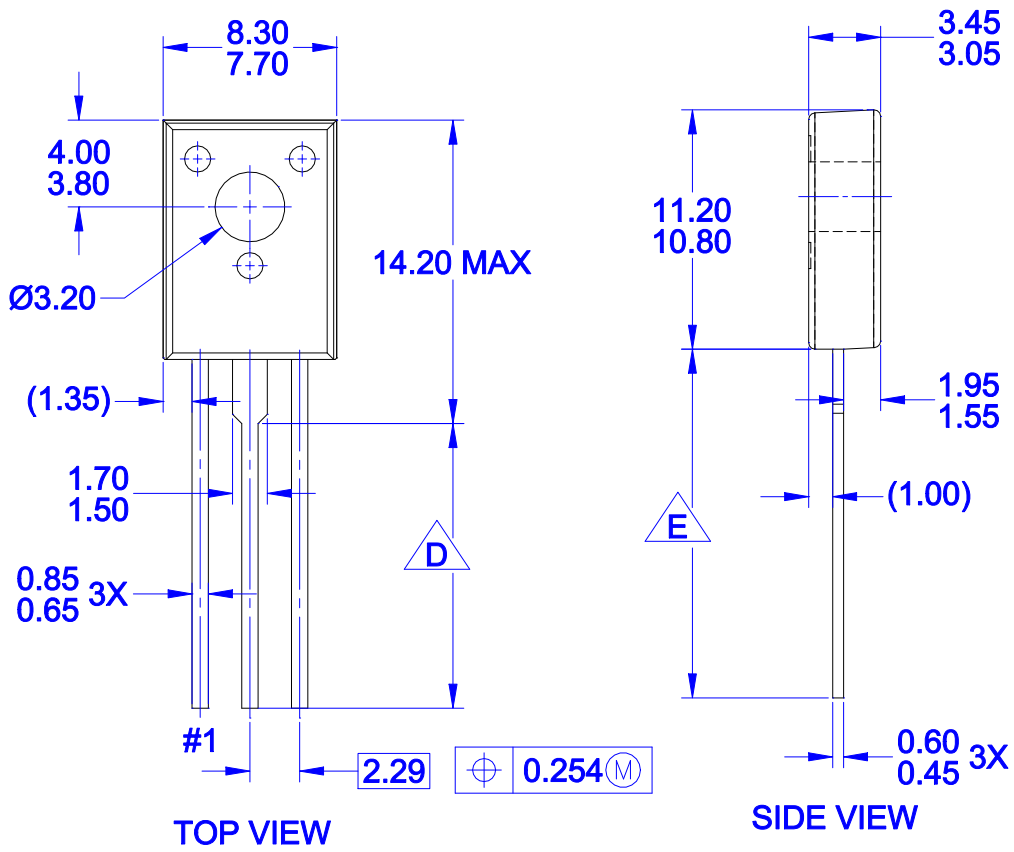

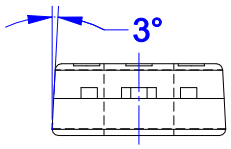

PRODUCTION CODE	TERMINAL LENGTH "D"	TERMINAL LENGTH "E"
TSSTU	3.45 - 4.05	6.45 - 7.45
TSTU	2.36 - 2.96	5.36 - 6.36
NONE (STD LENGTH)	12.76 - 13.36	15.76 - 16.76

NOTES:

A. NO INDUSTRY STANDARD APPLIES TO THIS PACKAGE
B. ALL DIMENSIONS ARE IN MILLIMETERS
C. DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH, AND TIE BAR PROTRUSIONS

D FOR TERMINAL LENGTH "D", REFER TO TABLE

E FOR TERMINAL LENGTH "E", REFER TO TABLE

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