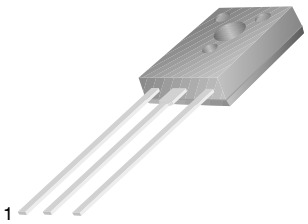
NPN Expitaxial Silicon Transistor

KSD1691



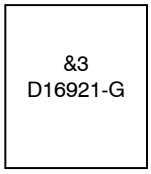
1. Emitter 2. Collector 3. Base

TO-126-3LD
CASE 340AS

Features

- Low Collector-Emitter Saturation Voltage & Large Collector
- Current
- High Power Dissipation: P_C = 1.3 W (T_A = 25 °C)
- Complementary to KSB1151

MARKING DIAGRAM



&3 = Numeric Date Code (Year & Week)
D1691 = Specific Device Code
G = h_{FE} Grade

ORDERING INFORMATION

See detailed ordering and shipping information on page 4 of this data sheet.
NOTE: Some of the device on this data sheet have been **DISCONTINUED**. Please refer to the table on page 4

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

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	60	V
V_{CEO}	Collector-Emitter Voltage	60	V
V_{EBO}	Emitter-Base Voltage	7	V
I_C	Collector Current (DC)	5	A
I_{CP}	*Collector Current (Pulse)	8	A
I_B	Base Current (DC)	1	A
P_C	Collector Dissipation (T_A = 25 °C)	1.3	W
	Collector Dissipation (T_C = 25 °C)	20	
T_J	Junction Temperature	150	°C
T_{stg}	Storage Temperature	−55 ~ 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.
* PW ≤ 10 ms, Duty Cycle ≤ 50%.

ELECTRICAL CHARACTERISTICS (T_C = 25 °C unless otherwise noted)

Symbol	Parameter	Test Condition	Value			Unit
			Min	Typ	Max	
I_{CBO}	Collector Cut-off Current	V_{CB} = 50 V, I_E = 0	–	–	−1	μA
I_{EBO}	Emitter Cut-off Current	V_{EB} = 7 V, I_C = 0	–	–	−1	μA
h_{FE1}	*DC Current Gain	V_{CE} = 1 V, I_C = 0.1 A	60	–	–	–
h_{FE2}		V_{CE} = 1 V, I_C = 2 A	100	–	400	
h_{FE3}		V_{CE} = 1 V, I_C = 5 A	50	–	–	
V_{CE}(sat)	*Collector−Emitter Saturation Voltage	I_C = 2 A, I_B = 0.2 A	–	0.1	0.3	V
V_{BE}(sat)	*Base-Emitter Saturation Voltage	I_C = 2 A, I_B = 0.2 A	–	0.9	1.2	V
t_{ON}	Turn ON Time	V_{CC} = 10 V, I_C = 2 A	–	0.2	1	μs
T_{stg}	Storage Time	I_{B1} = −I_{B2} = 0.2 A	–	1.1	2.5	μs
t_F	Fall Time	R_L = 5 kΩ	–	0.2	1	μs

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.
* Pulse Test: PW ≤ 50 μs, Duty Cycle ≤ 2% Pulsed.

h_{FE} CLASSIFICATION

Classification	O	Y	G
h_{FE2}	100 ~ 200	160 ~ 320	200 ~ 400

TYPICAL CHARACTERISTICS

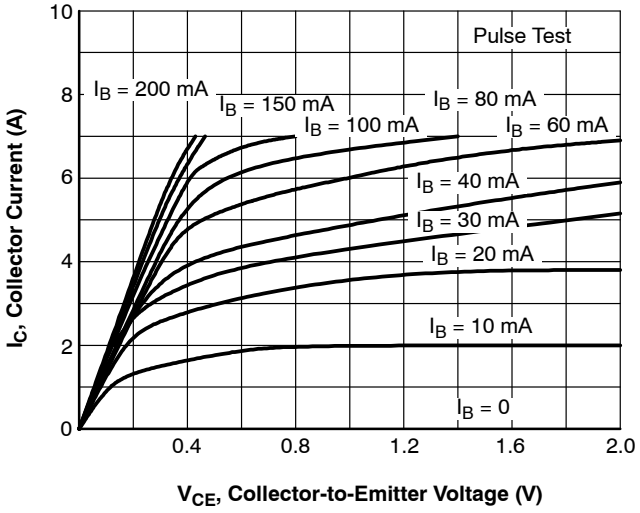


Figure 1. Static Characteristic

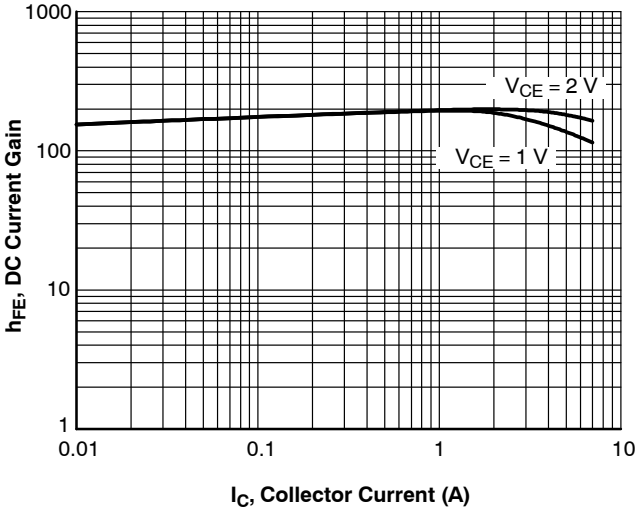


Figure 2. DC Current Gain

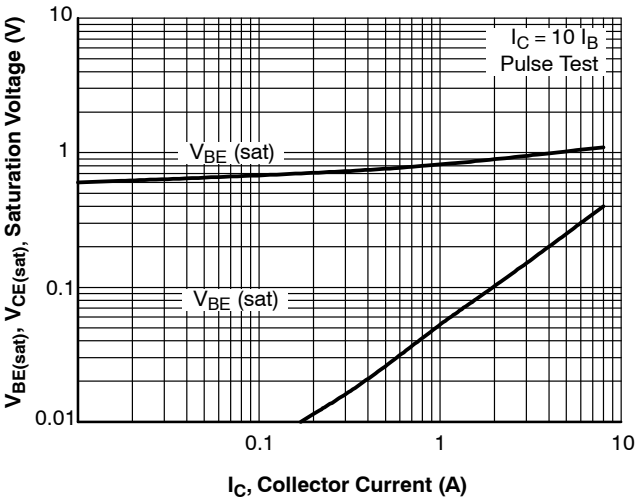


Figure 3. Collector-Emitter Saturation Voltage Base-Emitter Saturation Voltage

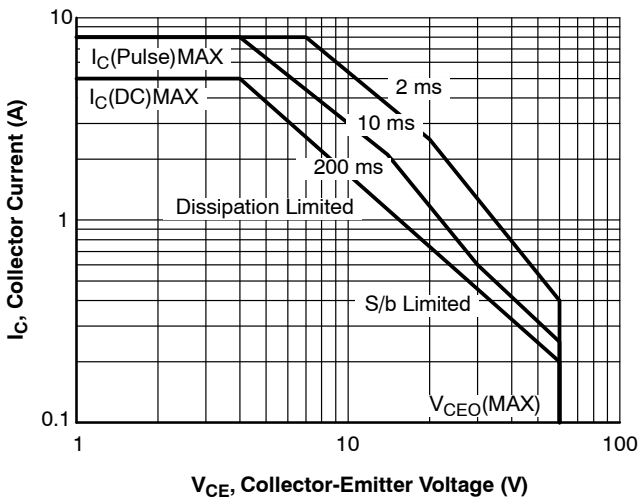


Figure 4. Forward Bias Safe Operating Area

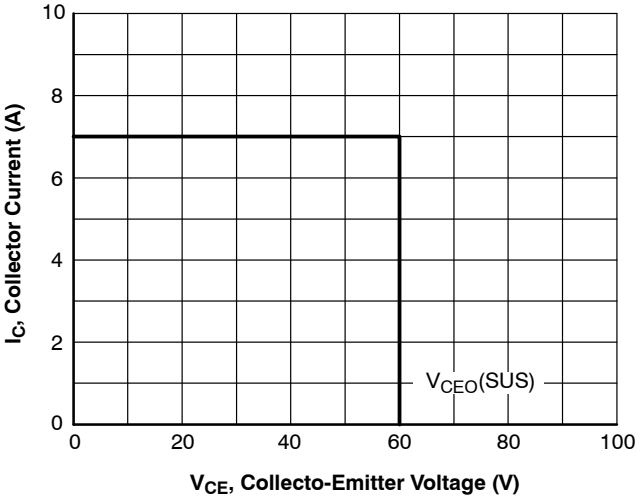


Figure 5. Reverse Bias Safe Operating Area

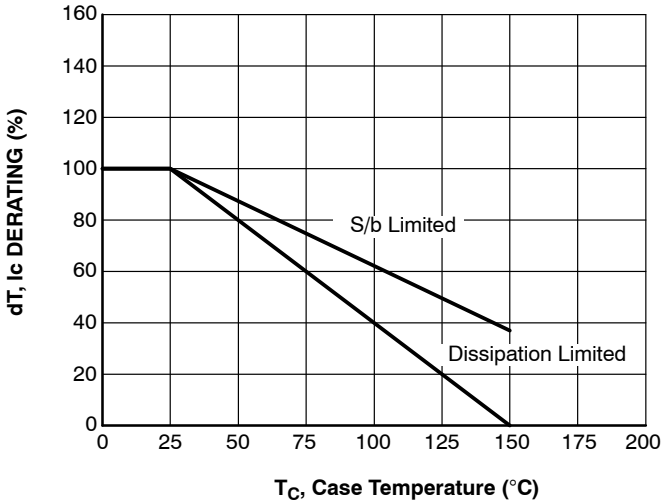


Figure 6. Derating Curve of Safe Operating Areas

TYPICAL CHARACTERISTICS (CONTINUED)

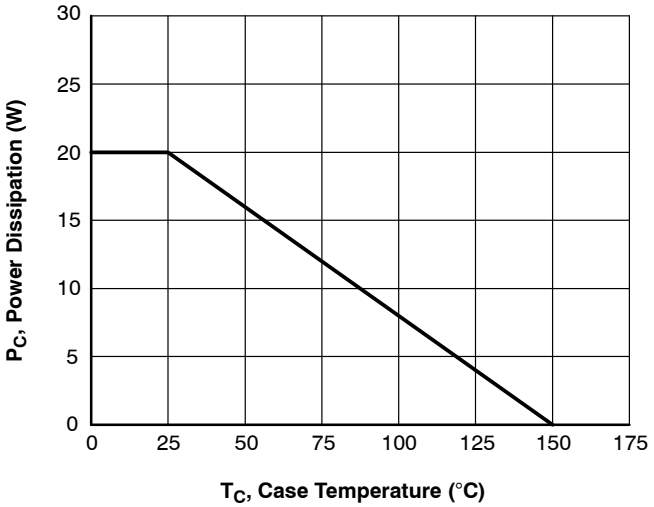


Figure 7. Power Derating

ORDERING INFORMATION

Device	Package	Shipping†
KSD1691YSTU	TO-126-3LD (Pb−Free)	1920 Units / Tube
KSD1691YS	TO-126-3LD (Pb−Free)	2000 Units / Tube

DISCONTINUED (Note 7)

Device	Package	Shipping†
KSD1691GSTU	TO-126-3LD (Pb-Free)	1920 Units / Tube
KSD1691GS	TO-126-3LD (Pb-Free)	2000 BLKBG

† 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.

1. **DISCONTINUED:** These devices are not available. Please contact your **onsemi** representative for information. The most current information on these devices may be available on www.onsemi.com.

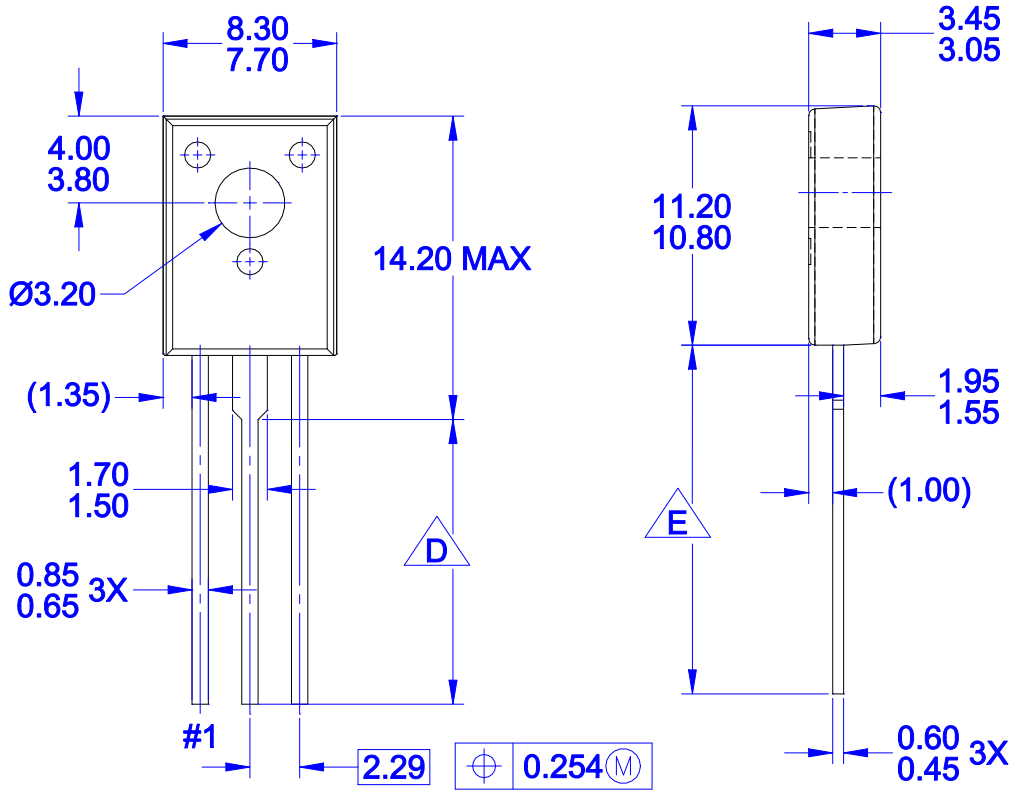
REVISION HISTORY

Revision	Description of Changes	Date
1	KSD1691GSTU, KSD1691GS OPN Marked as Discontinued + Rebranded the Data Sheet to **onsemi** format	1/21/2026

This document has undergone updates prior to the inclusion of this revision history table. The changes tracked here only reflect updates made on the noted approval dates.

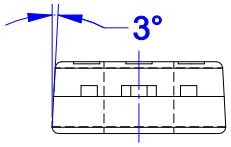
TO−126−3LD
CASE 340AS
ISSUE O

DATE 30 SEP 2016



TOP VIEW

SIDE VIEW



FRONT VIEW

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

DOCUMENT NUMBER:	**98AON13817G**	Electronic versions are uncontrolled except when accessed directly from the Document Repository. Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red.	
DESCRIPTION:	**TO−126−3LD**		**PAGE 1 OF 1**

ADDITIONAL INFORMATION

TECHNICAL PUBLICATIONS:
Technical Library: www.onsemi.com/design/resources/technical−documentation
onsemi Website: www.onsemi.com

ONLINE SUPPORT: www.onsemi.com/support
For additional information, please contact your local Sales Representative at www.onsemi.com/support/sales