N-Channel JFET

15 V, 6 to 32 mA, 38 mS, CP

2SK2394

SC−59−3
318BJ

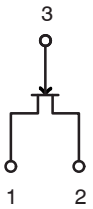
Features

- Large |yfs|
- Small C_{iss}
- Small−Sized Package Permitting 2SK2394−Applied Sets to be Made Small Slim
- Ultralow Noise Figure
- This is a Pb−Free Device

Applications

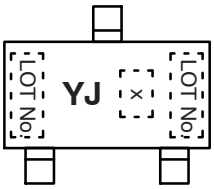
- AM Tuner RF Amplifier
- Low−Noise Amplifier

ELECTRICAL CONNECTION



1: Source
2: Drain
3: Gate

MARKING DIAGRAM



YJx = Specific Device Code
x = 6 or 7

ABSOLUTE MAXIMUM RATINGS at T_A = 25°C

Symbol	Parameter	Value	Unit
V_{DSX}	Drain−to−Source Voltage	15	V
V_{GDS}	Gate−to−Drain Voltage	−15	V
I_G	Gate Current	10	mA
I_D	Drain Current	50	mA
P_D	Allowable Power Dissipation	200	mW
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.

ORDERING INFORMATION

Device	Package	Shipping†
2SK2394−6−TB−E	SC−59−3 (Pb−Free)	3000 / Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, BRD8011/D.

© Semiconductor Components Industries, LLC, 2013

ELECTRICAL CHARACTERISTICS at T_A = 25°C

Symbol	Parameter	Test Conditions	Ratings			Unit
			Min	Typ	Max	
$V_{(BR)GDS}$	Gate−to−Drain Breakdown Voltage	I_G = −10 mA, V_{DS} = 0 V	−15	–	–	V
I_{GSS}	Gate Cutoff Current	V_{GS} = −10 V, V_{DS} = 0 V	–	–	−1.0	nA
$V_{GS(off)}$	Cutoff Voltage	V_{DS} = 5 V, I_D = 100 μA	−0.3	−0.7	−1.0	V
I_{DSS}	Drain Current	V_{DS} = 5 V, V_{GS} = 0 V	10	–	20	mA
yfs	Forward Transfer Admittance	V_{DS} = 5 V, V_{GS} = 0 V, f = 1 kHz	20	38	–	mS
C_{iss}	Input Capacitance	V_{DS} = 5 V, V_{GS} = 0 V, f = 1 MHz	–	10.0	–	pF
C_{rss}	Reverse Transfer Capacitance		–	2.9	–	pF
NF	Noise Figure	V_{DS} = 5 V, R_g = 1 kΩ, I_D = 1 mA, f = 1 kHz	–	1.0	–	dB

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.

TYPICAL CHARACTERISTICS

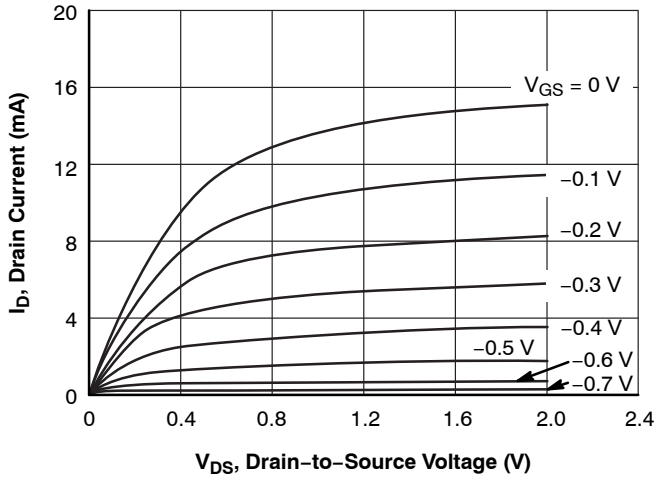


Figure 1. $I_D - V_{DS}$

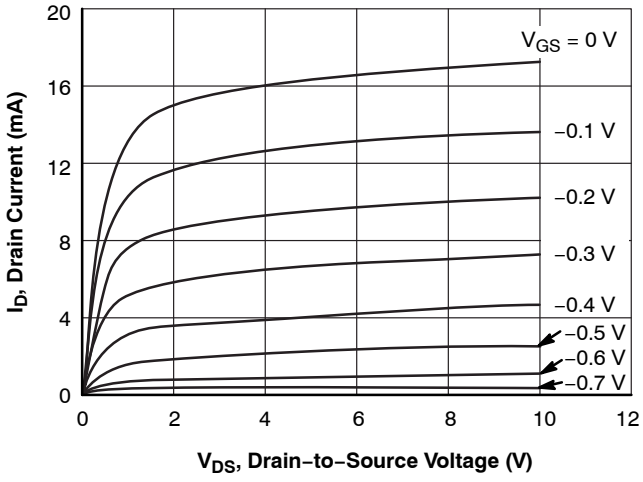


Figure 2. $I_D - V_{DS}$

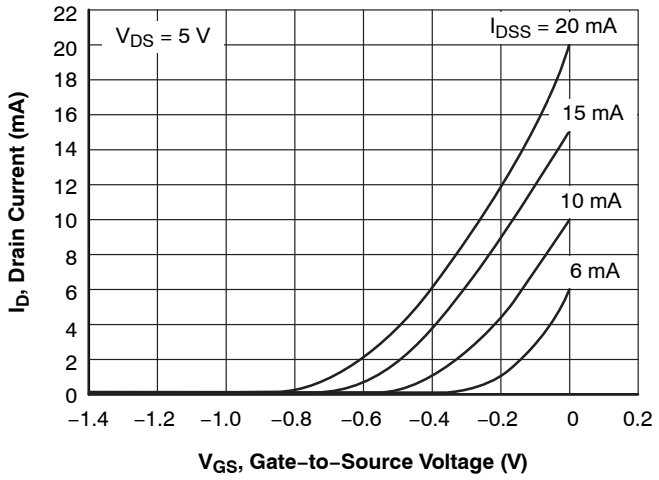


Figure 3. $I_D - V_{GS}$

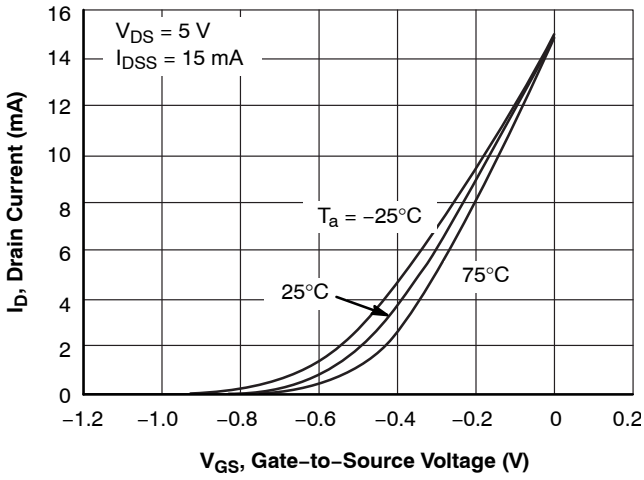


Figure 4. $I_D - V_{GS}$

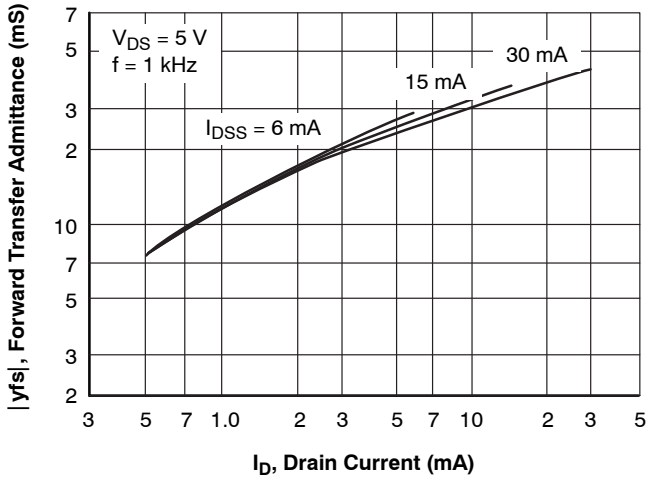


Figure 5. $|yfs| - I_D$

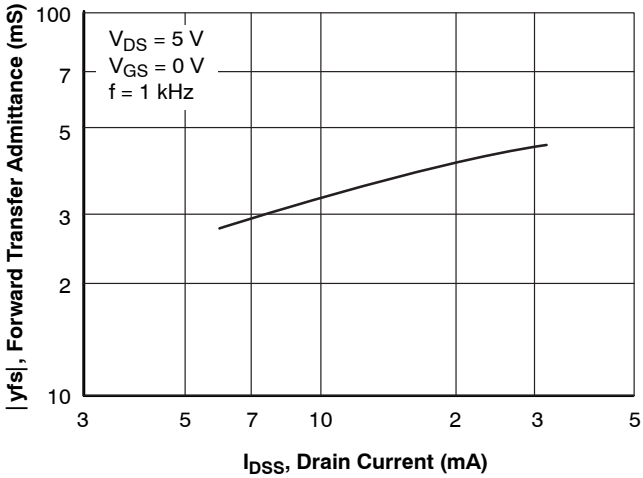


Figure 6. $|yfs| - I_{DSS}$

TYPICAL CHARACTERISTICS (continued)

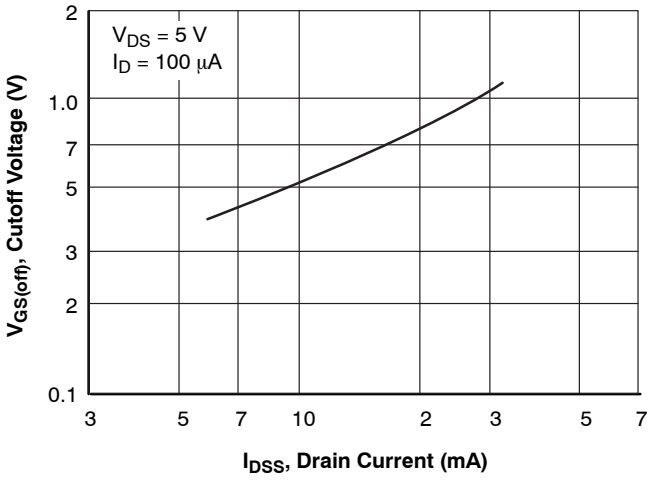


Figure 7. $V_{GS(off)}$ – I_{DSS}

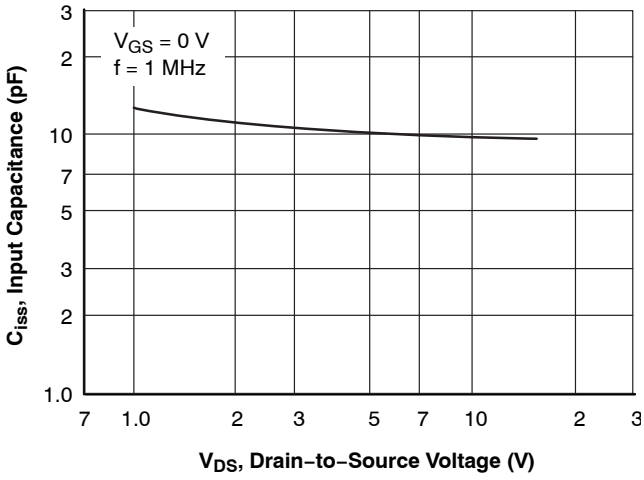


Figure 8. C_{iss} – V_{DS}

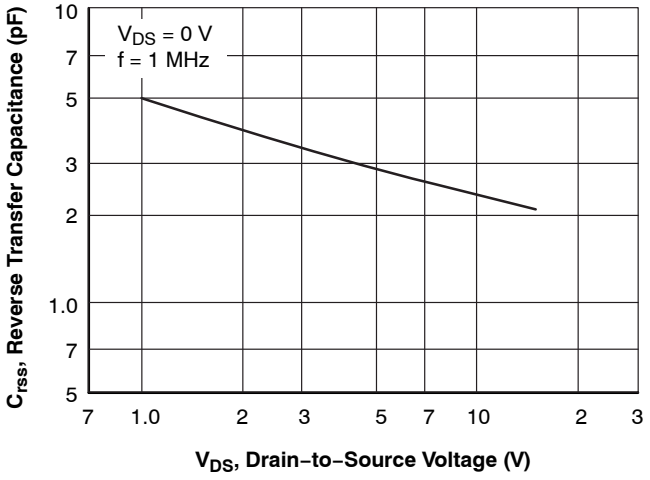


Figure 9. C_{rss} – V_{DS}

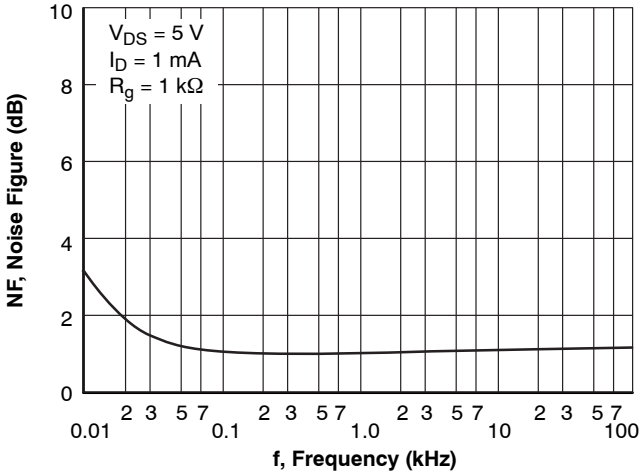


Figure 10. NF – f

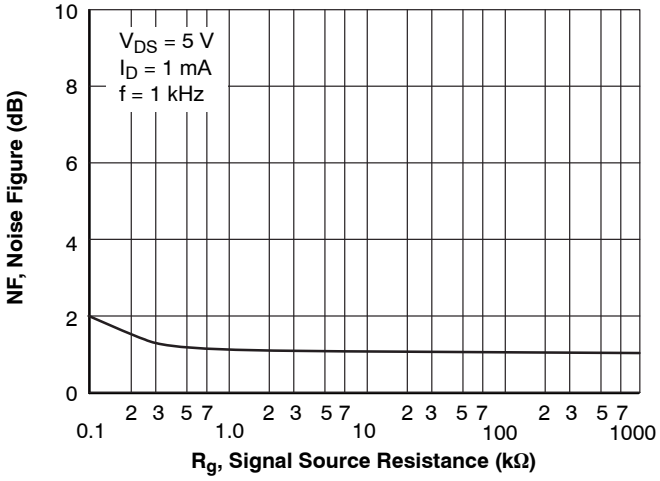


Figure 11. NF –R_g

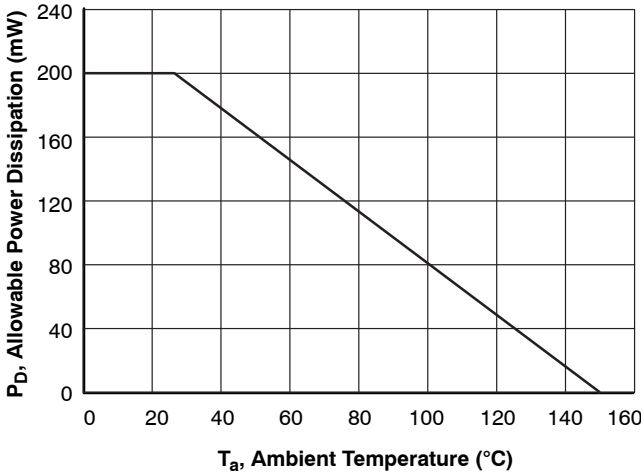


Figure 12. P_D – T_a

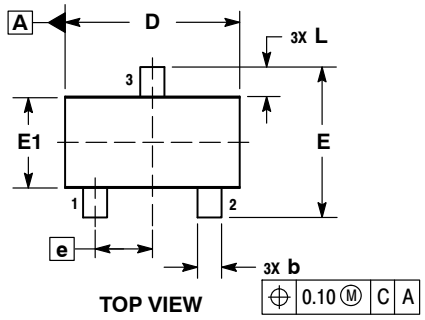
MECHANICAL CASE OUTLINE
PACKAGE DIMENSIONS

ON Semiconductor®

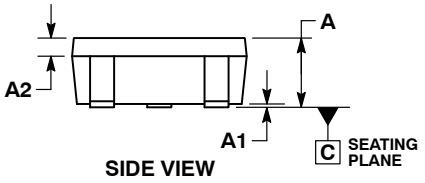
SCALE 2:1

SC−59 / CP3
CASE 318BJ
ISSUE O

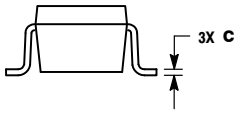
DATE 09 JAN 2015



TOP VIEW



SIDE VIEW

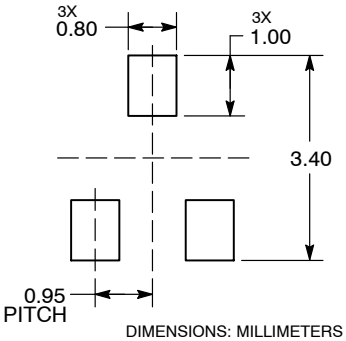


END VIEW

NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. DIMENSIONS D AND E1 DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS. MOLD FLASH, PROTRUSIONS, OR GATE BURRS SHALL NOT EXCEED 0.20 PER SIDE.
4. DIMENSIONS D AND E1 ARE MEASURED AT THE OUTERMOST EXTREME OF THE PLASTIC BODY.
5. DIMENSIONS b AND c APPLY TO THE FLAT SECTION OF THE LEAD BETWEEN 0.10 AND 0.20 FROM THE TIP.

	MILLIMETERS	
DIM	MIN	MAX
A	0.95	1.35
A1	0.00	0.10
A2	0.20	0.40
b	0.35	0.50
c	0.10	0.20
D	2.75	3.05
E	2.30	2.70
E1	1.35	1.65
e	0.95 BSC	
L	0.35	0.75

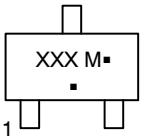
RECOMMENDED SOLDERING FOOTPRINT*



DIMENSIONS: MILLIMETERS

*For additional information on our Pb−Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

GENERIC MARKING DIAGRAM



XXX = Specific Device Code
M = Date Code
▪ = Pb−Free Package
(Note: Microdot may be in either location)

*This information is generic. Please refer to device data sheet for actual part marking. Pb−Free indicator, “G” or microdot “ ▪”, may or may not be present.

DOCUMENT NUMBER:	98AON94458F	Electronic versions are uncontrolled except when accessed directly from the Document Repository. Printed versions are uncontrolled except when stamped “CONTROLLED COPY” in red.	
DESCRIPTION:	SC−59 / CP3		PAGE 1 OF 1

ON Semiconductor and ON are trademarks of Semiconductor Components Industries, LLC dba ON Semiconductor or its subsidiaries in the United States and/or other countries. ON Semiconductor reserves the right to make changes without further notice to any products herein. ON Semiconductor makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does ON Semiconductor assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. ON Semiconductor does not convey any license under its patent rights nor the rights of others.

© Semiconductor Components Industries, LLC, 2019

onsemi, ONSEMI , and other names, marks, and brands are registered and/or common law trademarks of Semiconductor Components Industries, LLC dba "**onsemi**" or its affiliates and/or subsidiaries in the United States and/or other countries. **onsemi** owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of **onsemi**'s product/patent coverage may be accessed at www.onsemi.com/site/pdf/Patent−Marking.pdf. **onsemi** reserves the right to make changes at any time to any products or information herein, without notice. The information herein is provided "as−is" and **onsemi** makes no warranty, representation or guarantee regarding the accuracy of the information, product features, availability, functionality, or suitability of its products for any particular purpose, nor does **onsemi** assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. Buyer is responsible for its products and applications using **onsemi** products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by **onsemi**. "Typical" parameters which may be provided in **onsemi** data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. **onsemi** does not convey any license under any of its intellectual property rights nor the rights of others. **onsemi** products are not designed, intended, or authorized for use as a critical component in life support systems or any FDA Class 3 medical devices or medical devices with a same or similar classification in a foreign jurisdiction or any devices intended for implantation in the human body. Should Buyer purchase or use **onsemi** products for any such unintended or unauthorized application, Buyer shall indemnify and hold **onsemi** and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that **onsemi** was negligent regarding the design or manufacture of the part. **onsemi** is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Email Requests to: orderlit@onsemi.com

onsemi Website: www.onsemi.com

TECHNICAL SUPPORT
North American Technical Support:
Voice Mail: 1 800−282−9855 Toll Free USA/Canada
Phone: 011 421 33 790 2910

Europe, Middle East and Africa Technical Support:
Phone: 00421 33 790 2910
For additional information, please contact your local Sales Representative

◊