

N-Channel JFET

15 V, 10 to 32 mA, 35 mS, CP

2SK3557

Applications

- AM Tuner RF Amplification
- Low Noise Amplifier

Features

- Large |yfs|
- Small Ciss
- Ultrasmall-sized Package Permitting 2SK3557-applied Sets to be Made Smaller and Slimmer
- Ultralow Noise Figure
- These are Pb-Free Devices

Product & Package Information

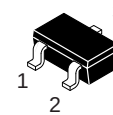
- Package: CP
- JEITA, JEDEC: SC-59, TO-236, SOT-23, TO-236AB
- Minimum Packing Quantity: 3,000 Pcs./Reel

Specifications

ABSOLUTE MAXIMUM RATINGS (at Ta = 25°C)

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSX}		15	V
Gate-to-Drain Voltage	V_{GDS}		-15	V
Gate Current	I_G		10	mA
Drain Current	I_D		50	mA
Allowable Power Dissipation	P_D		200	mW
Junction Temperature	T_j		150	°C
Storage Temperature	T_{stg}		-55 to +150	°C

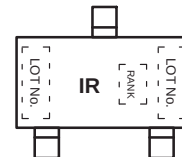
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.



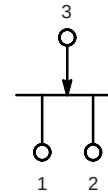
- 1: Source
- 2: Drain
- 3: Gate

SC-59 / CP3
CASE 318BJ

MARKING DIAGRAM



ELECTRICAL CONNECTION



ORDERING INFORMATION

Device	Package	Shipping [†]
2SK3557-6-TB-E	CP (Pb-Free)	3,000 / Tape & Reel
2SK3557-7-TB-E	CP (Pb-Free)	3,000 / Tape & Reel

[†]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.

ELECTRICAL CHARACTERISTICS (at Ta = 25°C)

Parameter	Symbol	Conditions	Ratings			Unit
			Min	Typ	Max	
Gate-to-Drain Breakdown Voltage	$V_{(BR)GDS}$	$I_G = -10 \mu A, V_{DS} = 0 V$	-15	-	-	V
Gate Cutoff Current	I_{GSS}	$V_{GS} = -10 V, V_{DS} = 0 V$	-	-	-1.0	nA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = 5 V, I_D = 100 \mu A$	-0.3	-0.7	-1.5	V
Drain Current	I_{DSS}	$V_{DS} = 5 V, V_{GS} = 0 V$	10*	-	32*	mA
Forward Transfer Admittance	$ y_{fs} $	$V_{DS} = 5 V, V_{GS} = 0 V, f = 1 kHz$	24	35	-	mS
Input Capacitance	C_{iss}	$V_{DS} = 5 V, V_{GS} = 0 V, f = 1 MHz$	-	10.0	-	pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS} = 5 V, V_{GS} = 0 V, f = 1 MHz$	-	2.9	-	pF
Noise Figure	NF	$V_{DS} = 5 V, R_g = 1 k\Omega, I_D = 1 mA, f = 1 kHz$	-	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.

*The 2SK3557 is classified by I_{DSS} as follows: (unit: mA)

Table 1.

Rank	6	7
I_{DSS}	10.0 to 20.0	16.0 to 32.0



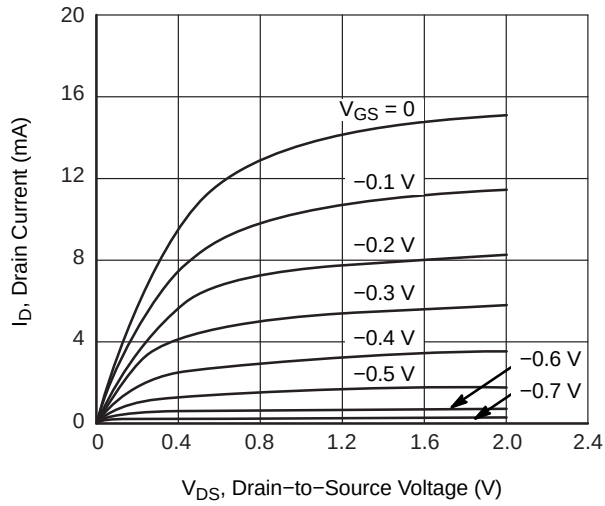


Figure 1. $I_D - V_{DS}$

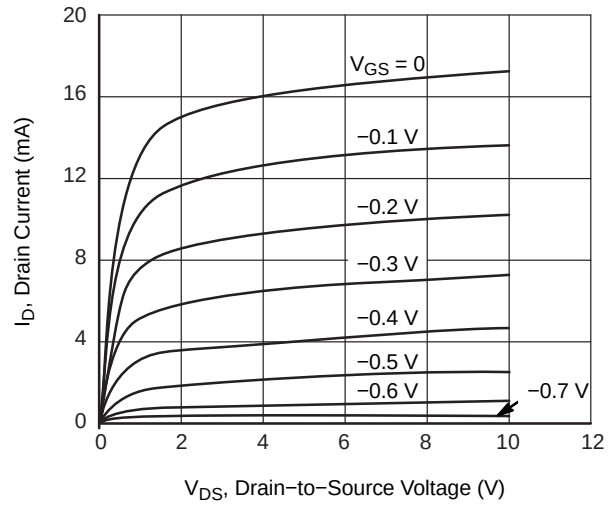


Figure 2. $I_D - V_{DS}$

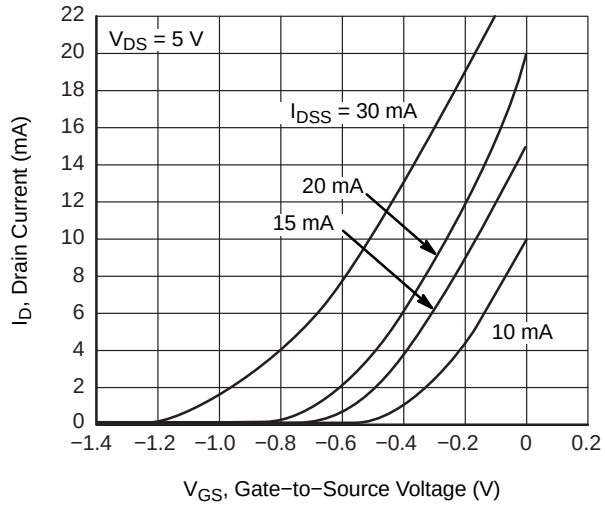


Figure 3. $I_D - V_{GS}$

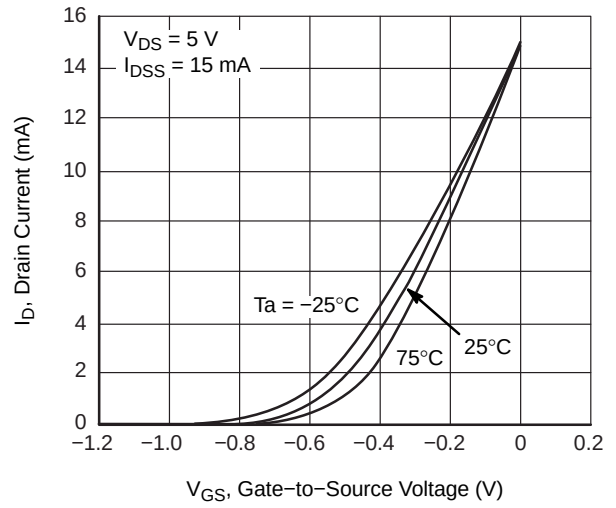


Figure 4. $I_D - V_{GS}$

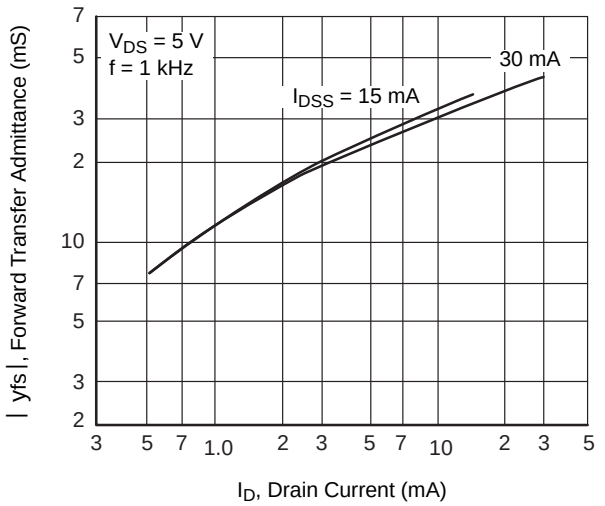


Figure 5. $|y_{fs}| - I_D$

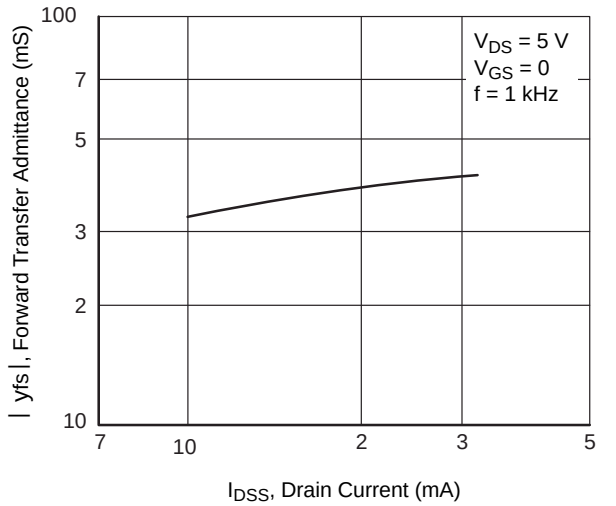


Figure 6. $|y_{fs}| - I_{DSS}$

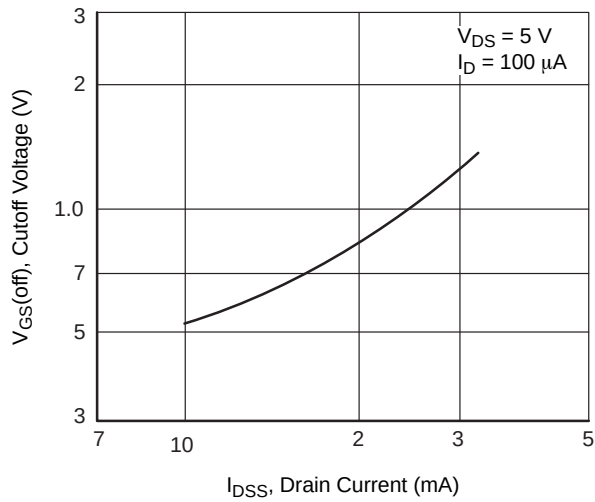


Figure 7. $V_{GS(off)}$ – I_{DSS}

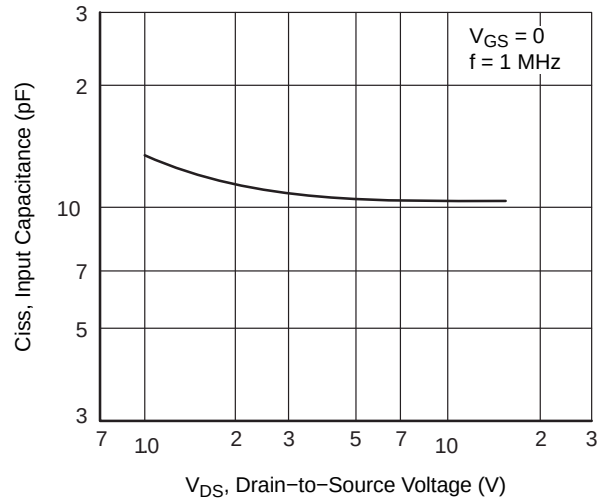


Figure 8. C_{iss} – V_{DS}

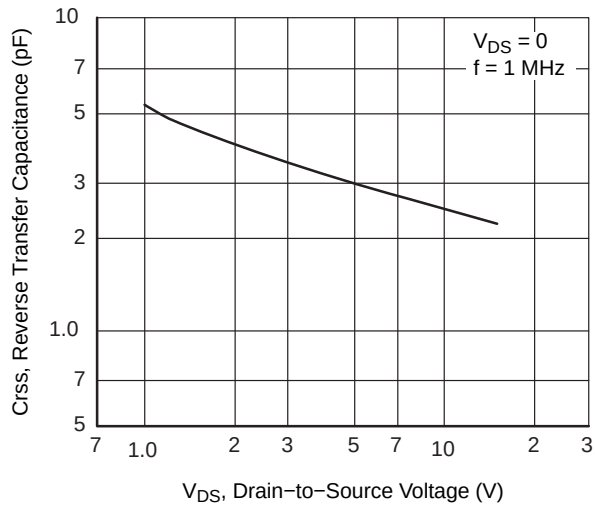


Figure 9. C_{rss} – V_{DS}

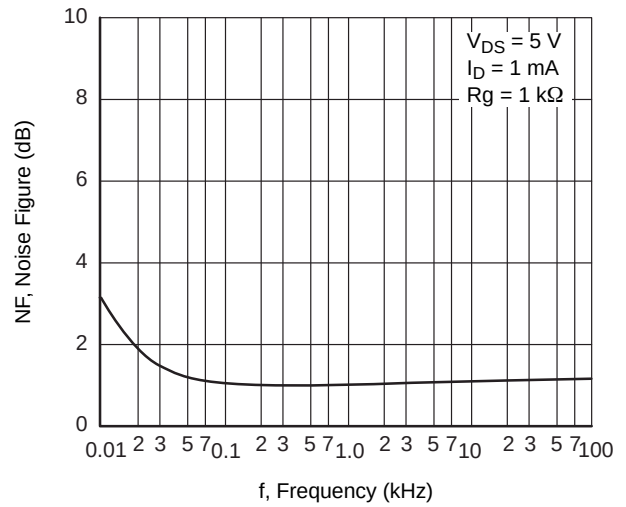


Figure 10. NF – f

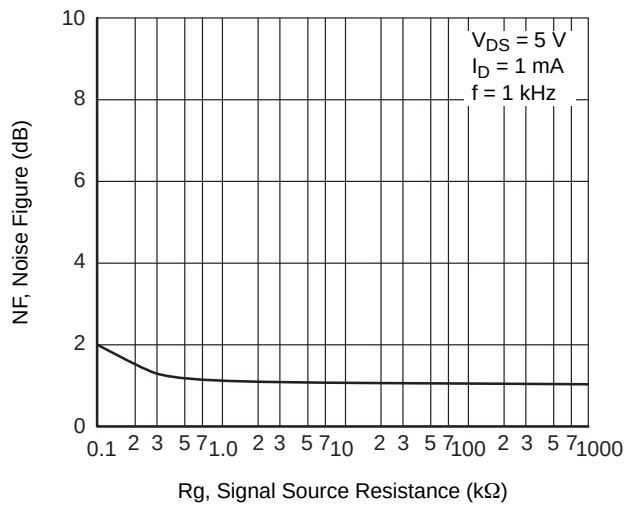


Figure 11. NF – R_g

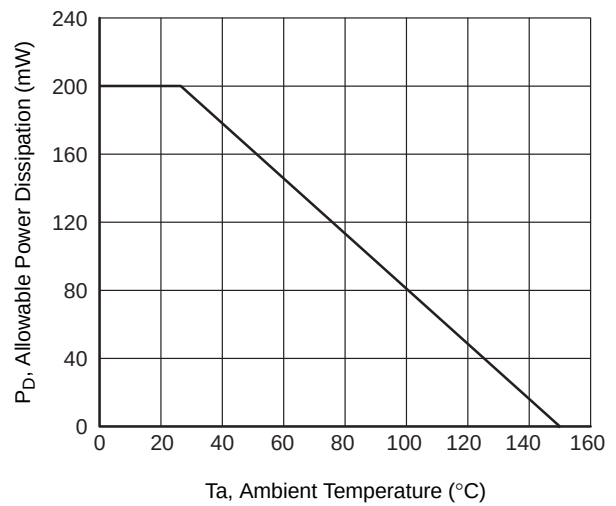


Figure 12. P_D – T_a

Land Pattern Example

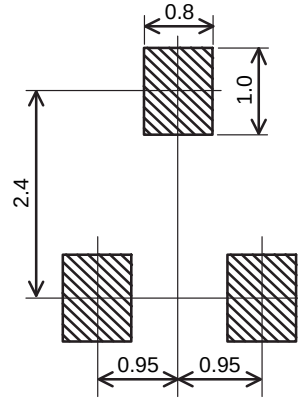


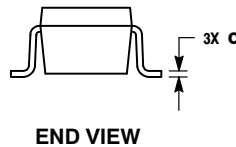
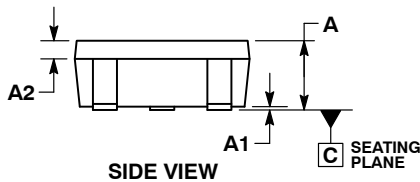
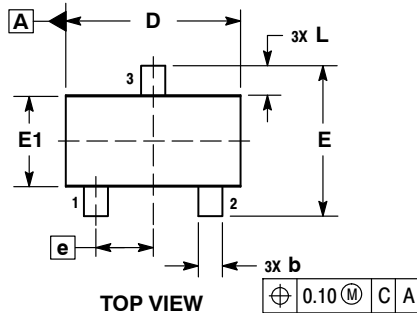
Figure 13. Land Pattern Example



SCALE 2:1

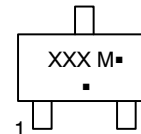
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NOTES:

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.

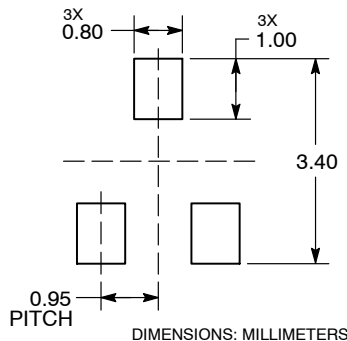
DIM	MILLIMETERS	
	MIN	MAX
A	0.95	1.35
A1	0.00	0.10
A2	0.20	0.40
b	0.35	0.50
c	0.10	0.20
D	2.75	3.05
E	2.30	2.70
E1	1.35	1.65
e	0.95 BSC	
L	0.35	0.75

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.

RECOMMENDED SOLDERING FOOTPRINT*


*For additional information on our Pb-Free strategy and soldering details, please download the **onsemi** Soldering and Mounting Techniques Reference Manual, [SOLDERRM/D](#).

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