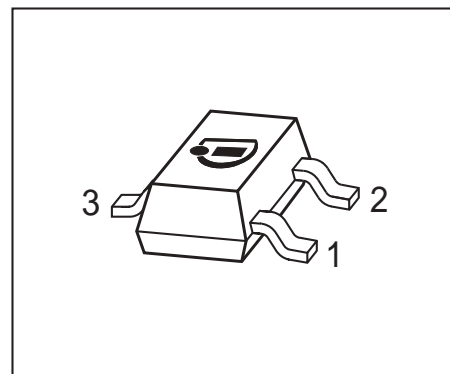


## Silicon N-Channel MOSFET Triode

- For high-frequency stages up to 300 MHz preferably in FM applications
- Pb-free (RoHS compliant) package<sup>1)</sup>
- Qualified according AEC Q101



**ESD (Electrostatic discharge)** sensitive device, observe handling precaution!

Type	Marking	Pin Configuration						Package
BF999	LBs	1=G	2=D	3=S	-	-	-	SOT23

### Maximum Ratings

Parameter	Symbol	Value	Unit
Drain-source voltage	$V_{DS}$	20	V
Continuous drain current	$I_D$	30	mA
Gate-source peak current	$\pm I_{GSM}$	10	mA
Total power dissipation $T_S \leq 76^\circ\text{C}$	$P_{tot}$	200	mW
Storage temperature	$T_{stg}$	-55 ... 150	$^\circ\text{C}$
Channel temperature	$T_{ch}$	150	

### Thermal Resistance

Parameter	Symbol	Value	Unit
Channel - soldering point <sup>2)</sup>	$R_{thchs}$	$\leq 370$	K/W

<sup>1</sup>Pb-containing package may be available upon special request

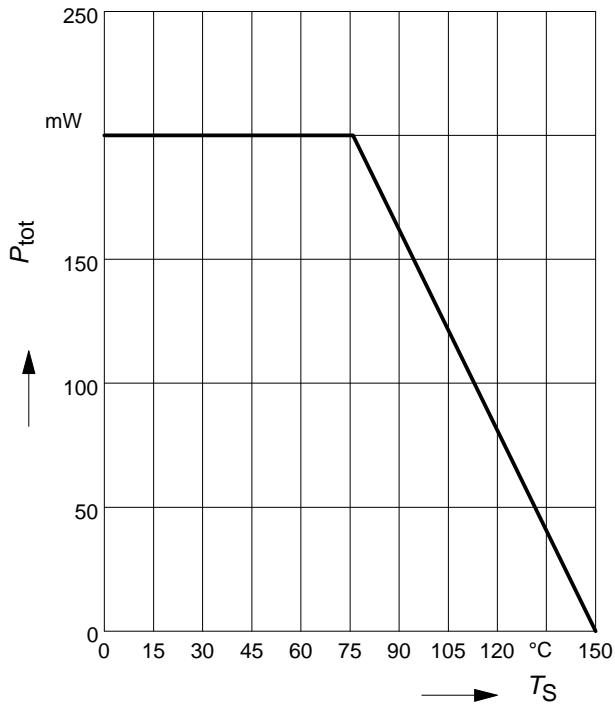
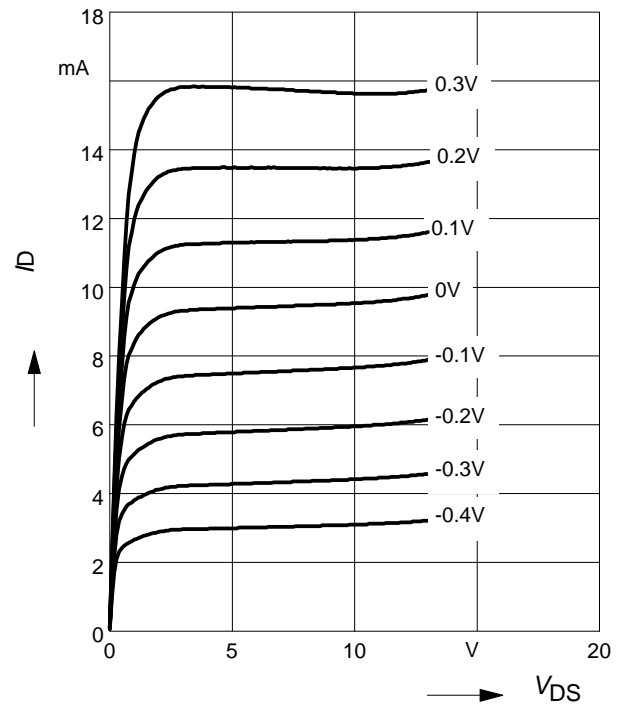
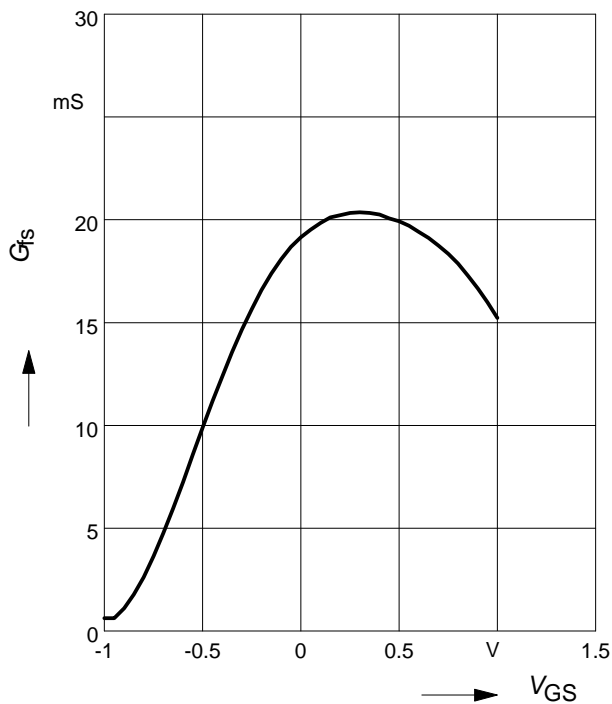
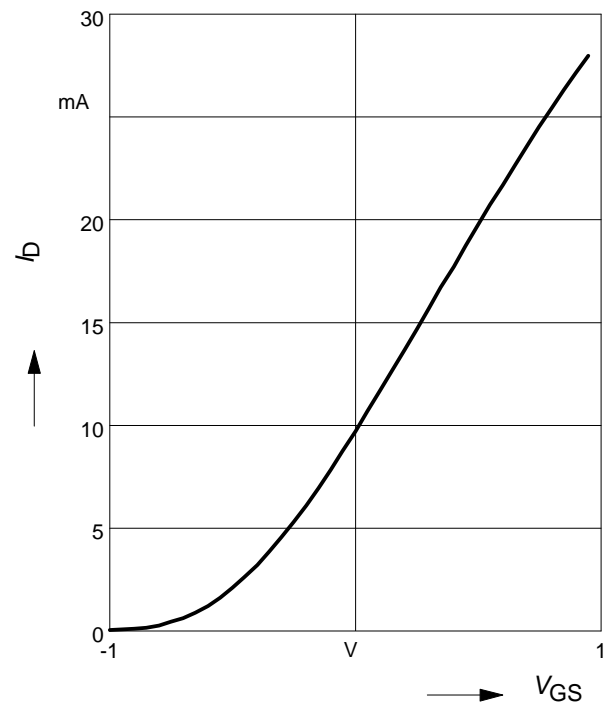
<sup>2</sup>For calculation of  $R_{thJA}$  please refer to Application Note Thermal Resistance

**Electrical Characteristics** at  $T_A = 25^\circ\text{C}$ , unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Drain-source breakdown voltage $I_D = 10\ \mu\text{A}$ , $-V_{GS} = 4\ \text{V}$	$V_{(\text{BR})\text{DS}}$	20	-	-	V
Gate-source breakdown voltage $\pm I_{GS} = 10\ \text{mA}$ , $V_{DS} = 0$	$\pm V_{(\text{BR})\text{GSS}}$	6.5	-	12	
Gate-source leakage current $\pm V_{GS} = 5\ \text{V}$ , $V_{DS} = 0$	$\pm I_{GSS}$	-	-	50	nA
Drain current $V_{DS} = 10\ \text{V}$ , $V_{GS} = 0$	$I_{DSS}$	5	10	16	mA
Gate-source pinch-off voltage $V_{DS} = 10\ \text{V}$ , $I_D = 20\ \mu\text{A}$	$-V_{GS(\text{p})}$	-	0.8	1.5	V

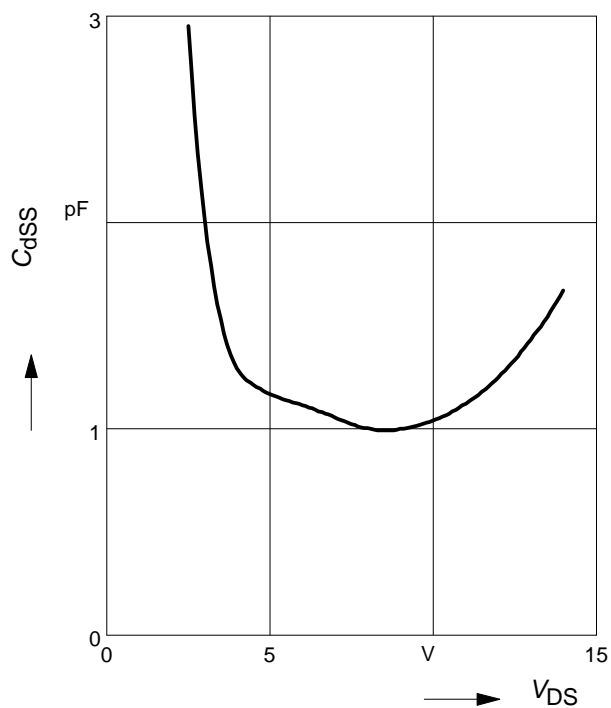
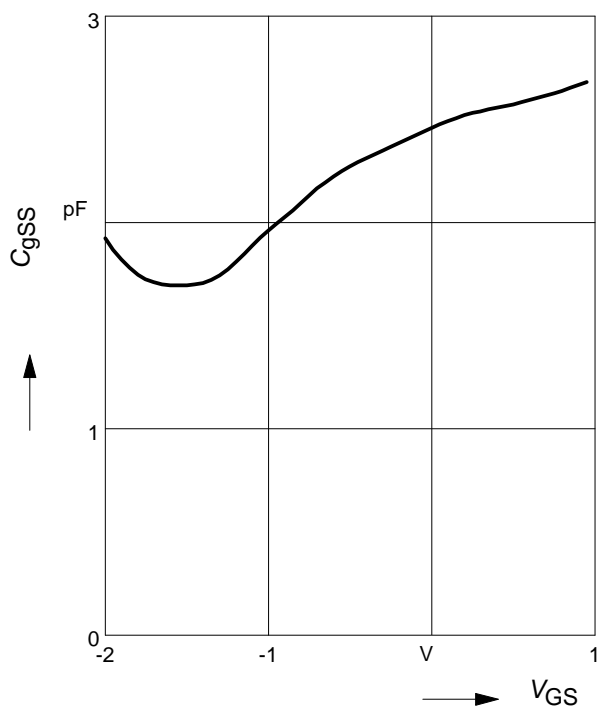
**Electrical Characteristics** at  $T_A = 25^\circ\text{C}$ , unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
AC Characteristics					
Forward transconductance $V_{DS} = 10\text{ V}$ , $I_D = 10\text{ mA}$	$g_{fs}$	14	20	-	mS
Gate input capacitance $V_{DS} = 10\text{ V}$ , $I_D = 10\text{ mA}$ , $f = 10\text{ MHz}$	$C_{gss}$	-	2.5	-	pF
Output capacitance $V_{DS} = 10\text{ V}$ , $I_D = 10\text{ mA}$ , $f = 10\text{ MHz}$	$C_{dss}$	-	0.9	-	pF
Power gain $V_{DS} = 10\text{ V}$ , $I_D = 10\text{ mA}$ , $f = 45\text{ MHz}$	$G_p$	-	27	-	dB
Noise figure $V_{DS} = 10\text{ V}$ , $I_D = 10\text{ mA}$ , $f = 45\text{ MHz}$	$F$	-	2.1	-	dB

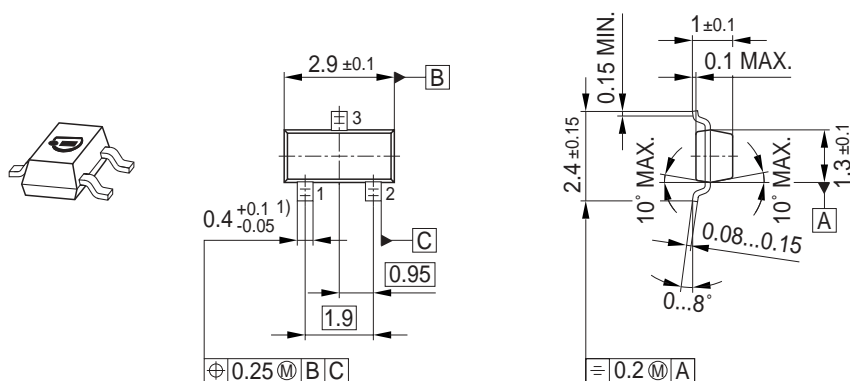
**Total power dissipation  $P_{\text{tot}} = f(T_S)$** 

**Output characteristics  $I_D = f(V_{\text{DS}})$** 

**Gate transconductance  $g_{\text{fs}} = f(V_{\text{GS}})$** 

**Drain current  $I_D = f(V_{\text{GS}})$** 


**Gate input capacitance**  $C_{gss} = f(V_{GS})$

**Output capacitance**  $C_{dss} = f(V_{DS})$

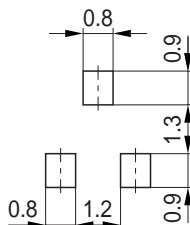


## Package Outline

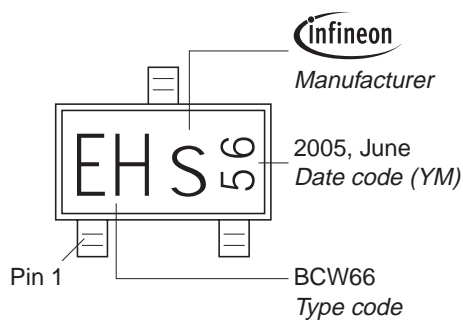


1) Lead width can be 0.6 max. in dambar area

## Foot Print

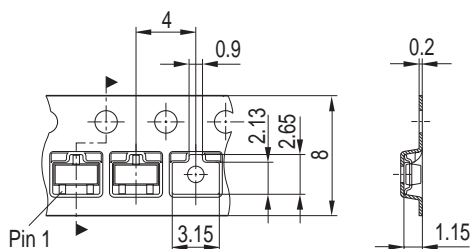


## Marking Layout (Example)



## Standard Packing

Reel ø180 mm = 3.000 Pieces/Reel  
Reel ø330 mm = 10.000 Pieces/Reel



Edition 2006-02-01  
Published by  
Infineon Technologies AG  
81726 München, Germany  
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