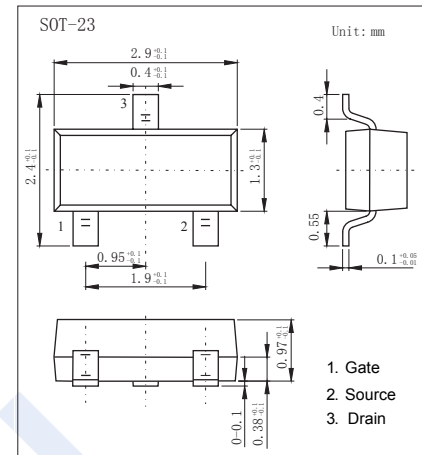
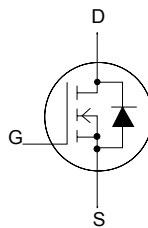


N-Channel MOSFET

BSH105 (KSH105)

■ Features

- $V_{DS} (V) = 20V$
- $I_D = 1.05 A (V_{GS} = 10V)$
- $R_{DS(ON)} < 200m\Omega (V_{GS} = 4.5V)$
- $R_{DS(ON)} < 250m\Omega (V_{GS} = 2.5V)$
- $R_{DS(ON)} < 300m\Omega (V_{GS} = 1.8V)$



■ Absolute Maximum Ratings $T_a = 25^\circ C$

Parameter	Symbol	Rating	Unit	
Drain-Source Voltage	V_{DS}	20	V	
Drain-Gate voltage ($R_{GS} = 20 K\Omega$)	V_{DGR}	20		
Gate-Source Voltage	V_{GS}	± 8		
Continuous Drain Current	I_D	$T_a=25^\circ C$	1.05	A
		$T_a=100^\circ C$	0.67	
Pulsed Drain Current	I_{DM}	4.2		
Power Dissipation	P_D	$T_a=25^\circ C$	417	mW
		$T_a=100^\circ C$	170	
Thermal Resistance.Junction- to-Ambient	R_{thJA}	300	$^\circ C/W$	
Junction Temperature	T_J	150	$^\circ C$	
Storage Temperature Range	T_{stg}	-55 to 150		

N-Channel MOSFET

BSH105 (KSH105)

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V _{DSS}	I _D =250 μA, V _{GS} =0V	20			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =16V, V _{GS} =0V			0.1	μA
		V _{DS} =16V, V _{GS} =0V, T _J =150°C			10	
Gate-Body Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±8V			±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =1mA	0.4		1.2	V
		V _{DS} =V _{GS} , I _D =1mA, T _J =150°C	0.1			
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =4.5V, I _D =0.6A			200	mΩ
		V _{GS} =2.5V, I _D =0.6A			250	
		V _{GS} =2.5V, I _D =0.6A, T _J =150°C			375	
		V _{GS} =1.8V, I _D =0.3A			300	
Forward transconductance	g _{fs}	V _{DS} = 16 V; I _D = 0.6 A		1.6		S
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =16V, f=1MHz		152		pF
Output Capacitance	C _{oss}			71		
Reverse Transfer Capacitance	C _{rss}			33		
Total Gate Charge	Q _g	V _{GS} =4.5V, V _{DS} =20V, I _D =1A		3.9		nC
Gate Source Charge	Q _{gs}			0.4		
Gate Drain Charge	Q _{gd}			1.4		
Turn-On DelayTime	t _{d(on)}	V _{GS} =8V, V _{DS} =20V, I _D =1A, R _G =6Ω		2		ns
Turn-On Rise Time	t _r			4.5		
Turn-Off DelayTime	t _{d(off)}			45		
Turn-Off Fall Time	t _f			20		
Body Diode Reverse Recovery Time	t _{rr}	I _F = 0.5A, di/dt= 100A/μs, V _{GS} = 0 V; V _R = 16 V		27		nA
Body Diode Reverse Recovery Charge	Q _{rr}			19		
Maximum Body-Diode Continuous Current	I _S				1.05	A
Pulsed Reverse Drain Current	I _{SM}				4.2	
Diode Forward Voltage	V _{SD}	I _S =0.5A, V _{GS} =0V			1	V

N-Channel MOSFET BSH105 (KSH105)

■ Typical Characteristics

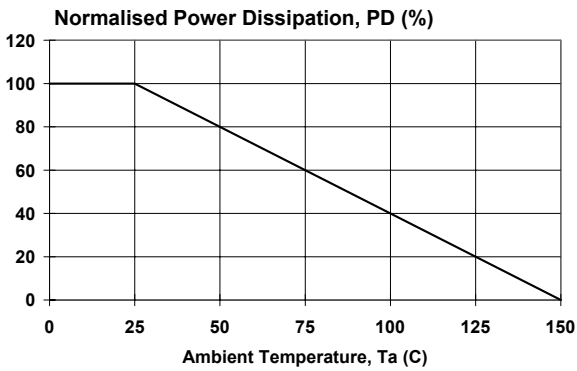


Fig.1. Normalised power dissipation.
 $PD\% = 100 \cdot P_D / P_{D, 25^\circ C} = f(T_a)$

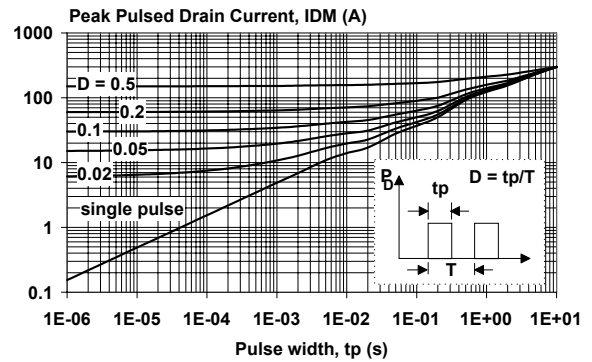


Fig.4. Transient thermal impedance.
 $Z_{th-j-a} = f(t)$; parameter $D = t_p / T$

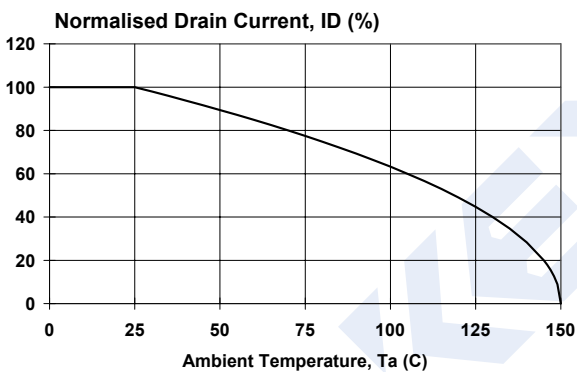


Fig.2. Normalised continuous drain current.
 $ID\% = 100 \cdot I_D / I_{D, 25^\circ C} = f(T_a)$; conditions: $V_{GS} \geq 4.5 V$

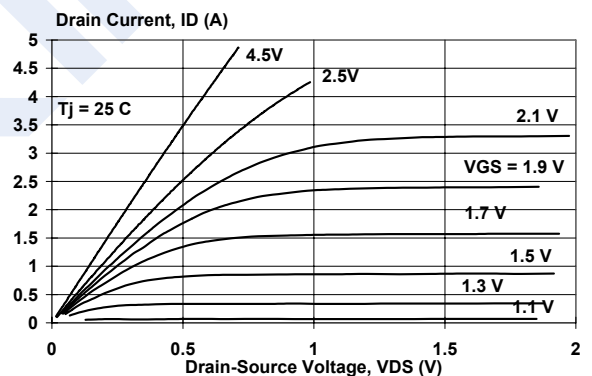


Fig.5. Typical output characteristics, $T_j = 25^\circ C$.
 $I_D = f(V_{DS})$; parameter V_{GS}

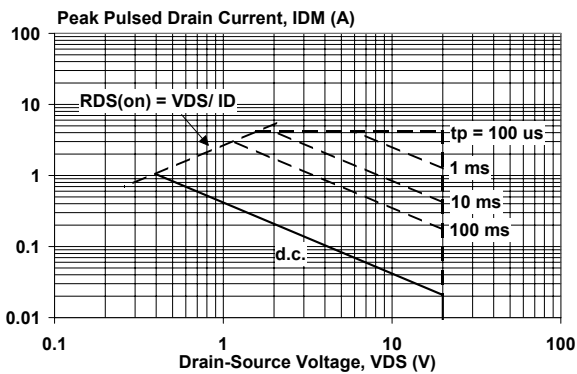


Fig.3. Safe operating area. $T_a = 25^\circ C$
 I_D & $I_{DM} = f(V_{DS})$; I_{DM} single pulse; parameter t_p

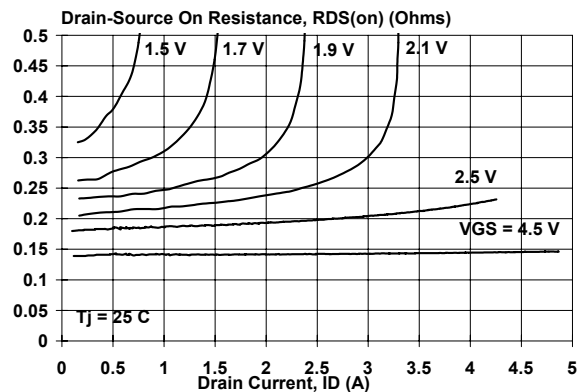


Fig.6. Typical on-state resistance, $T_j = 25^\circ C$.
 $R_{DS(on)} = f(I_D)$; parameter V_{GS}

N-Channel MOSFET BSH105 (KSH105)

■ Typical Characteristics

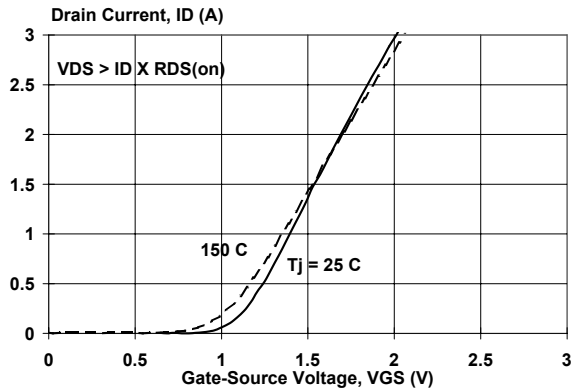


Fig. 7. Typical transfer characteristics.
 $I_D = f(V_{GS})$

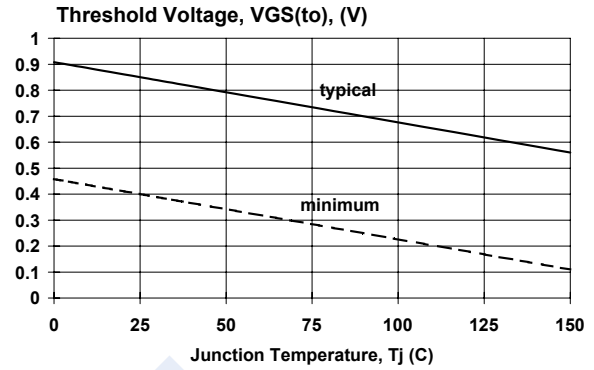


Fig. 10. Gate threshold voltage.
 $V_{GS(TO)} = f(T_j)$; conditions: $I_D = 1 \text{ mA}$; $V_{DS} = V_{GS}$

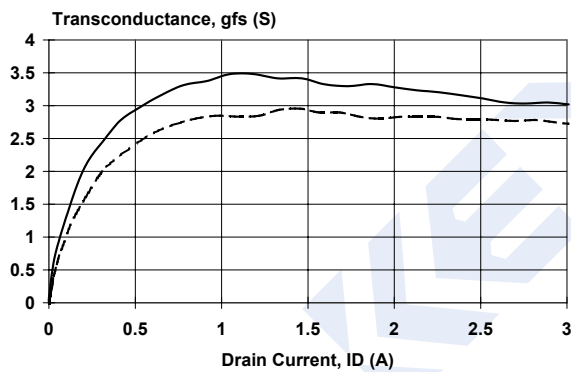


Fig. 8. Typical transconductance, $T_j = 25 \text{ }^\circ\text{C}$.
 $g_{fs} = f(I_D)$

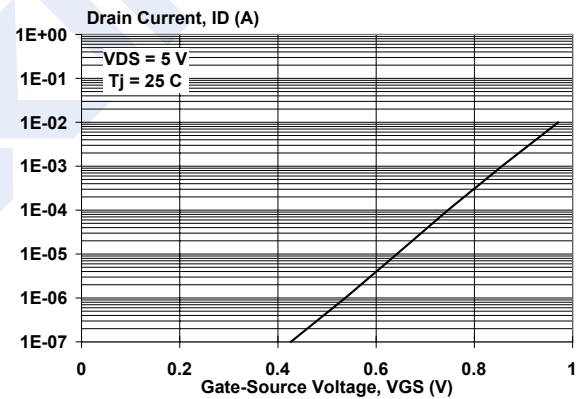


Fig. 11. Sub-threshold drain current.
 $I_D = f(V_{GS})$; conditions: $T_j = 25 \text{ }^\circ\text{C}$

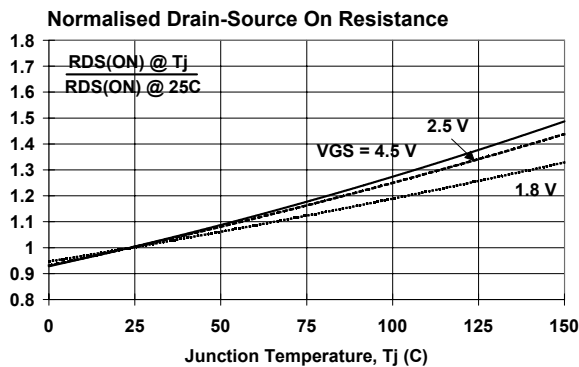


Fig. 9. Normalised drain-source on-state resistance.
 $R_{DS(ON)}/R_{DS(ON)25^\circ\text{C}} = f(T_j)$

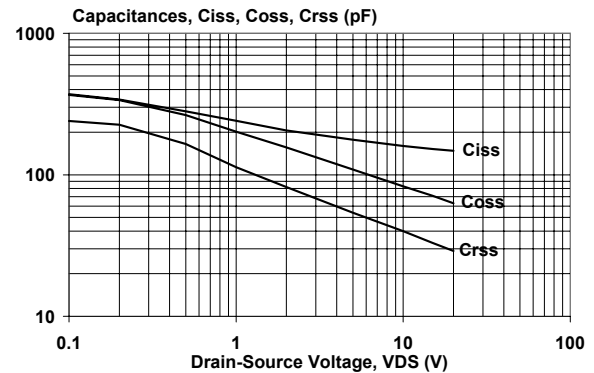


Fig. 12. Typical capacitances, C_{iss} , C_{oss} , C_{rss} .
 $C = f(V_{DS})$; conditions: $V_{GS} = 0 \text{ V}$; $f = 1 \text{ MHz}$

N-Channel MOSFET BSH105 (KSH105)

■ Typical Characteristics

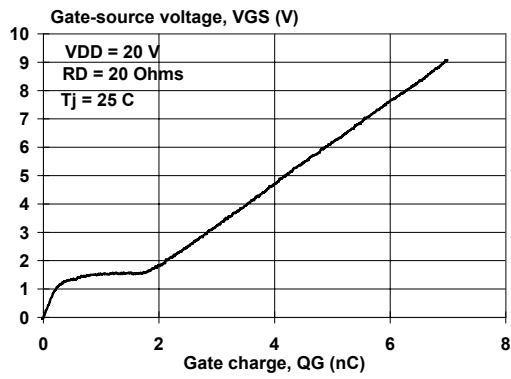


Fig. 13. Typical turn-on gate-charge characteristics.
 $V_{GS} = f(Q_G)$

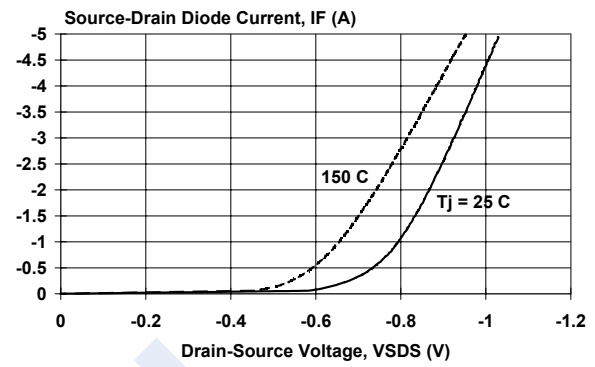


Fig. 14. Typical reverse diode current.
 $I_F = f(V_{SDS})$; conditions: $V_{GS} = 0$ V; parameter T_j