Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

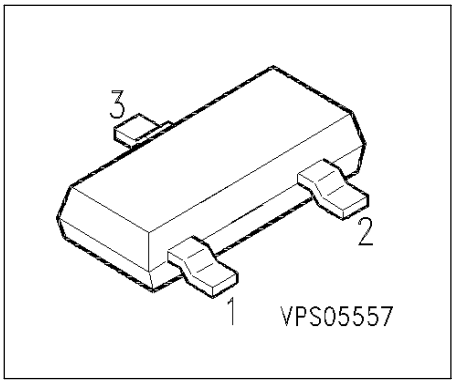
Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832
Email & Skype: info@chipsmall.com Web: www.chipsmall.com
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

BSS 123

SIPMOS ® Small-Signal Transistor

- N channel
- Enhancement mode
- Logic Level
- $V_{GS(th)}$ = 0.8...2.0V



Pin 1	Pin 2	Pin 3
G	S	D

Type	V_{DS}	I_D	$R_{DS(on)}$	Package	Marking
BSS 123	100 V	0.17 A	6 Ω	SOT-23	SAs

Type	Ordering Code	Tape and Reel Information
BSS 123	Q62702-S512	E6327
BSS 123	Q67000-S245	E6433

Maximum Ratings

Parameter	Symbol	Values	Unit
Drain source voltage	V_{DS}	100	V
Drain-gate voltage R_{GS} = 20 kΩ	V_{DGR}	100	
Gate source voltage	V_{GS}	± 20	
ESD Sensitivity (HBM) as per MIL-STD 883		Class 1	
Continuous drain current T_A = 28 ˚C	I_D	0.17	A
DC drain current, pulsed T_A = 25 ˚C	I_{Dpuls}	0.68	
Power dissipation T_A = 25 ˚C	P_{tot}	0.36	W

Maximum Ratings

Parameter	Symbol	Values	Unit
Chip or operating temperature	T_j	-55 ... + 150	˚C
Storage temperature	T_{stg}	-55 ... + 150	
Thermal resistance, chip to ambient air 1)	R_{thJA}	≤ 350	K/W
Therminal resistance, chip-substrate- reverse side 1)	R_{thJSR}	≤ 285	
DIN humidity category, DIN 40 040		E	
IEC climatic category, DIN IEC 68-1		55 / 150 / 56	

1) For package mounted on aluminium 15 mm x 16.7 mm x 0.7 mm

Electrical Characteristics, at T_j = 25˚C, unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
Static Characteristics					
Drain- source breakdown voltage V_{GS} = 0 V, I_D = 0.25 mA, T_j = 25 ˚C	$V_{(BR)DSS}$	100	-	-	V
Gate threshold voltage V_{GS}=V_{DS}, I_D = 1 mA	$V_{GS(th)}$	0.8	1.5	2	
Zero gate voltage drain current V_{DS} = 100 V, V_{GS} = 0 V, T_j = 25 ˚C V_{DS} = 100 V, V_{GS} = 0 V, T_j = 125 ˚C V_{DS} = 20 V, V_{GS} = 0 V, T_j = 25 ˚C	I_{DSS}	 - - -	 0.1 2 -	 1 60 10	 µA nA
Gate-source leakage current V_{GS} = 20 V, V_{DS} = 0 V	I_{GSS}	-	10	50	nA
Drain-Source on-state resistance V_{GS} = 10 V, I_D = 0.17 A V_{GS} = 4.5 V, I_D = 0.17 A	$R_{DS(on)}$	 - -	 3 4.5	 6 10	Ω

Electrical Characteristics, at T_j = 25˚C, unless otherwise specified

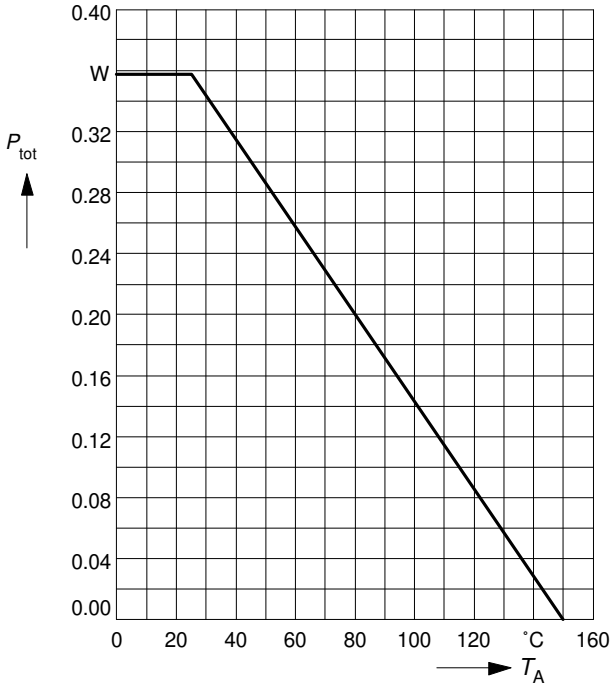
Parameter	Symbol	Values			Unit
		min.	typ.	max.	
Dynamic Characteristics					
Transconductance $V_{DS} \geq 2 * I_D * R_{DS(on)max}$, I_D = 0.17 A	g_{fs}	0.08	0.2	-	S
Input capacitance V_{GS} = 0 V, V_{DS} = 25 V, f = 1 MHz	C_{iss}	-	65	85	pF
Output capacitance V_{GS} = 0 V, V_{DS} = 25 V, f = 1 MHz	C_{oss}	-	10	15	
Reverse transfer capacitance V_{GS} = 0 V, V_{DS} = 25 V, f = 1 MHz	C_{rss}	-	4	6	
Turn-on delay time V_{DD} = 30 V, V_{GS} = 10 V, I_D = 0.28 A R_{GS} = 50 Ω	$t_{d(on)}$	-	5	8	ns
Rise time V_{DD} = 30 V, V_{GS} = 10 V, I_D = 0.28 A R_{GS} = 50 Ω	t_r	-	5	8	
Turn-off delay time V_{DD} = 30 V, V_{GS} = 10 V, I_D = 0.28 A R_{GS} = 50 Ω	$t_{d(off)}$	-	10	13	
Fall time V_{DD} = 30 V, V_{GS} = 10 V, I_D = 0.28 A R_{GS} = 50 Ω	t_f	-	12	16	

Electrical Characteristics, at T_j = 25˚C, unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
Reverse Diode					
Inverse diode continuous forward current T_A = 25 ˚C	I_S	-	-	0.17	A
Inverse diode direct current,pulsed T_A = 25 ˚C	I_{SM}	-	-	0.68	
Inverse diode forward voltage V_{GS} = 0 V, I_F = 0.34 A, T_j = 25 ˚C	V_{SD}	-	0.85	1.3	V

Power dissipation

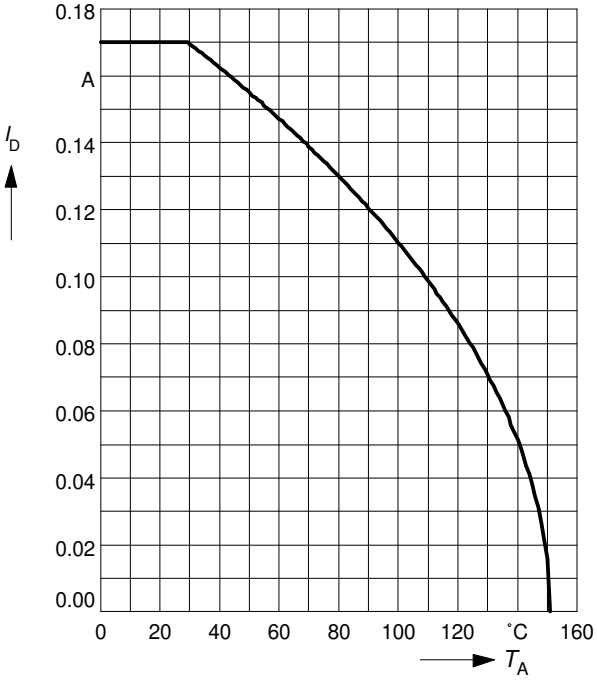
$P_{tot} = f(T_A)$



Drain current

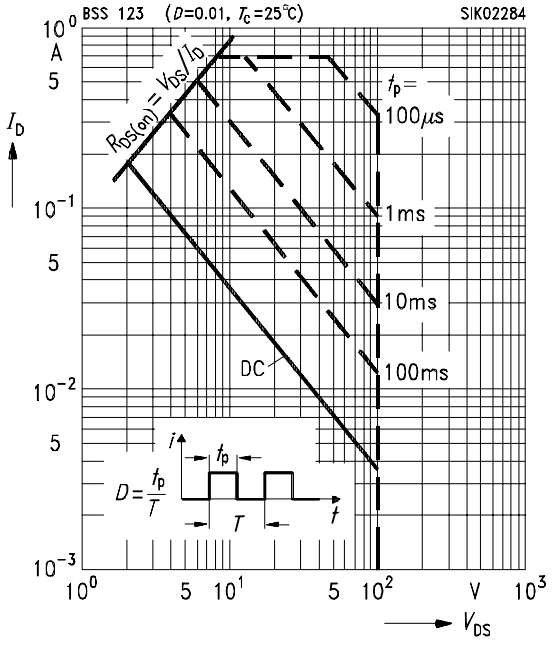
$I_D = f(T_A)$

parameter: $V_{GS} \geq 10$ V



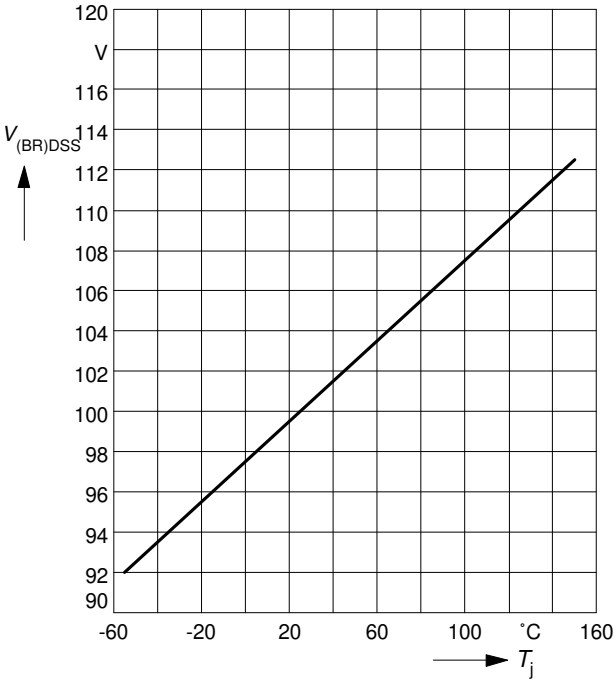
Safe operating area I_D=f(V_{DS})

parameter : D = 0.01, T_C=25°C



Drain-source breakdown voltage

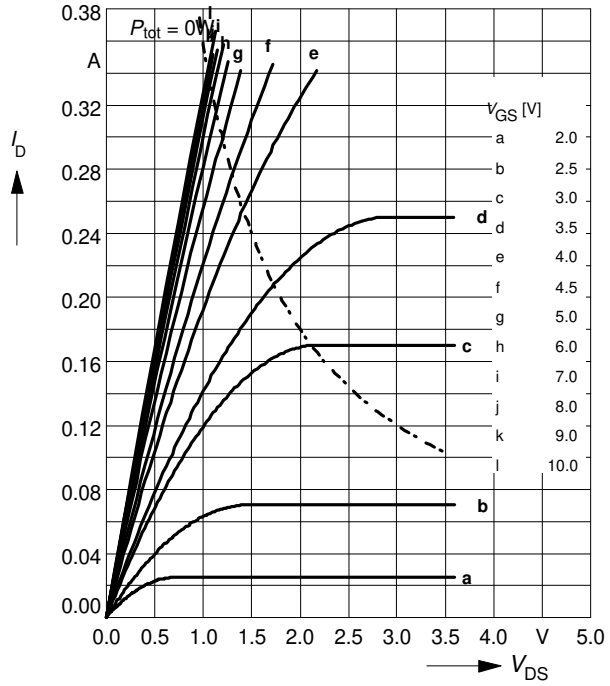
$V_{(BR)DSS} = f(T_j)$



Typ. output characteristics

$I_D = f(V_{DS})$

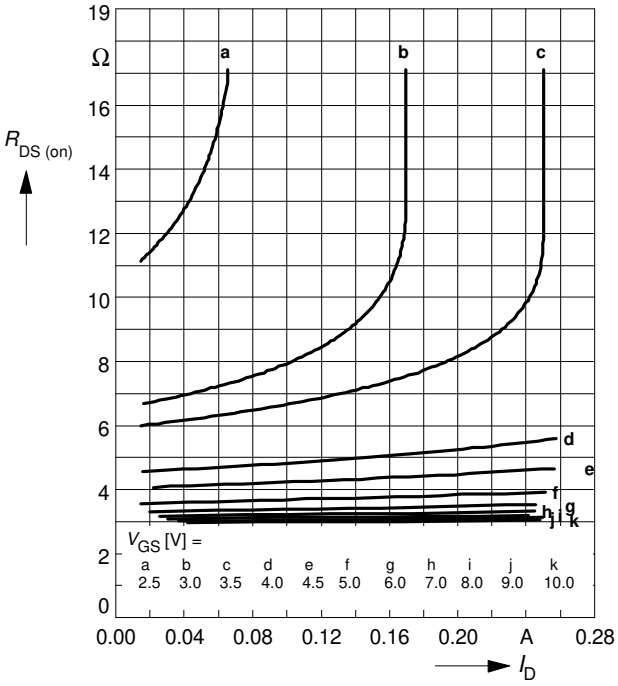
parameter: t_p = 80 µs , T_j = 25 ˚C



Typ. drain-source on-resistance

$R_{DS\ (on)} = f(I_D)$

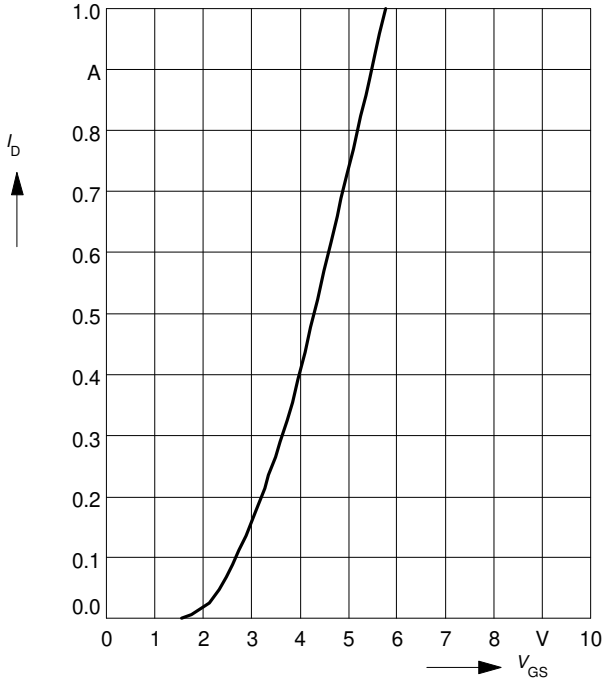
parameter: t_p = 80 µs, T_j = 25 ˚C



Typ. transfer characteristics $I_D = f(V_{GS})$

parameter: t_p = 80 µs

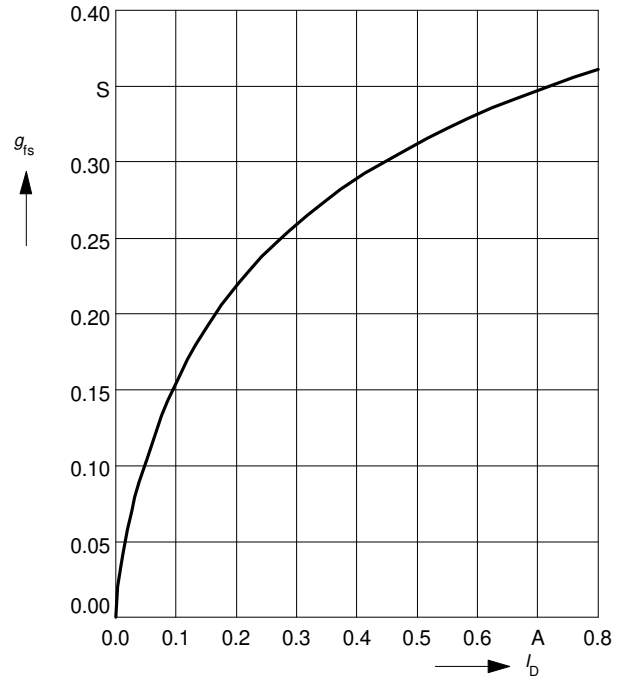
$V_{DS} \geq 2 \times I_D \times R_{DS(on)max}$



Typ. forward transconductance $g_{fs} = f(I_D)$

parameter: t_p = 80 µs,

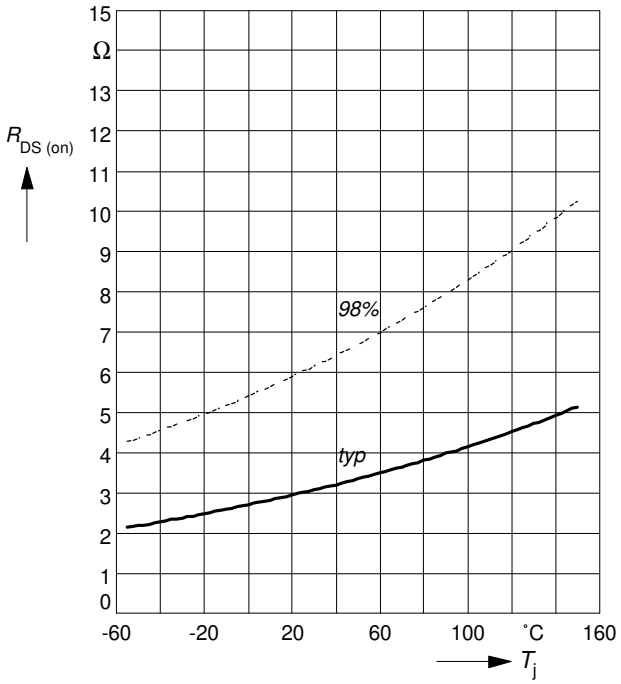
$V_{DS} \geq 2 \times I_D \times R_{DS(on)max}$



Drain-source on-resistance

$R_{DS\,(on)} = f(T_j)$

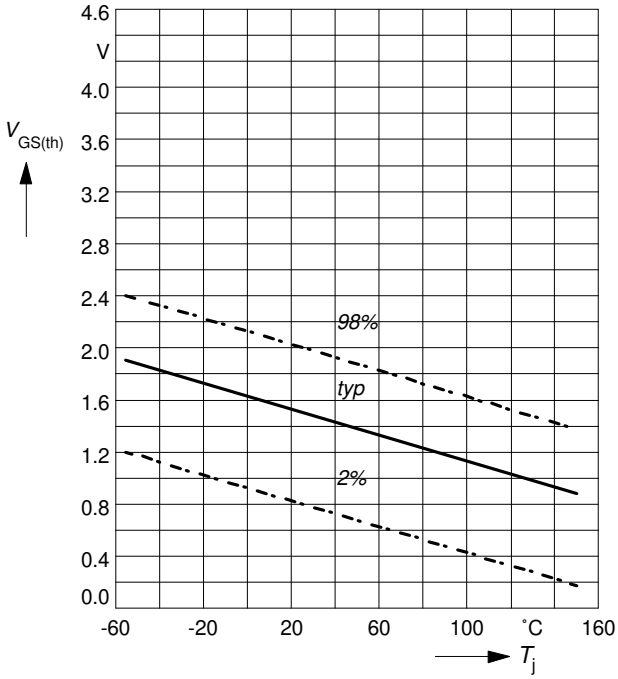
parameter: I_D = 0.17 A, V_{GS} = 10 V



Gate threshold voltage

$V_{GS\,(th)} = f(T_j)$

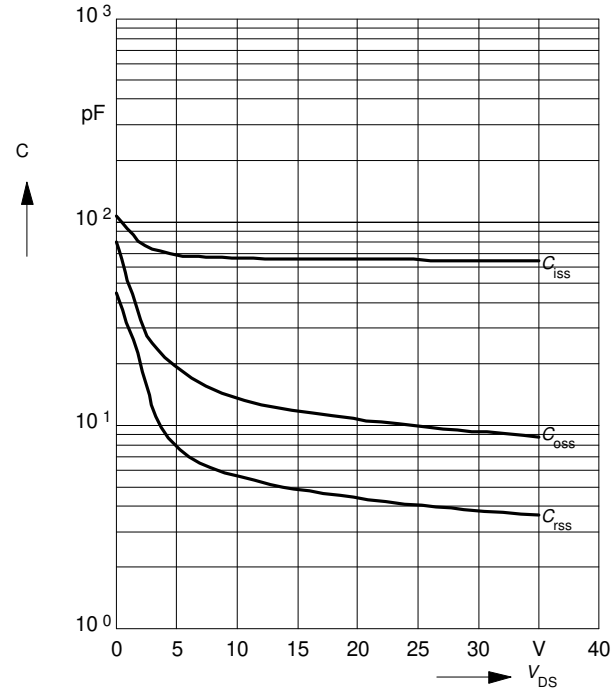
parameter: $V_{GS} = V_{DS}$, I_D = 1 mA



Typ. capacitances

$C = f(V_{DS})$

parameter: V_{GS}=0V, f = 1 MHz



Forward characteristics of reverse diode

$I_F = f(V_{SD})$

parameter: T_j, t_p = 80 µs