



Micro Commercial Components



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BSS138

N-Channel Enhancement Mode Field Effect Transistor

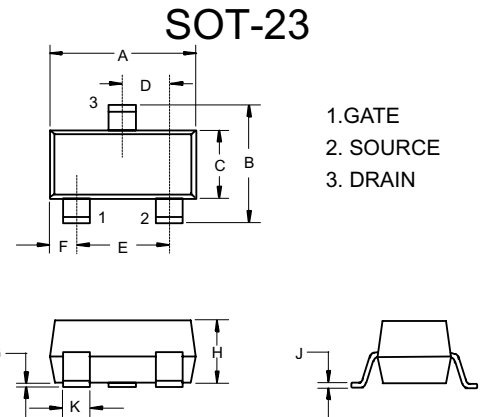
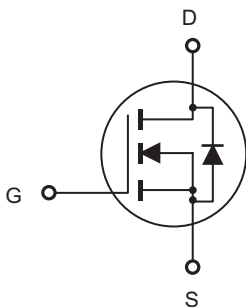
Features

- Halogen free available upon request by adding suffix "-HF"
- High dense cell design for extremely low $R_{DS(ON)}$
- Rugged and reliable
- Lead free product is acquired
- SOT-23 Package
- Marking Code: SS
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1

Maximum Ratings @ 25°C Unless Otherwise Specified

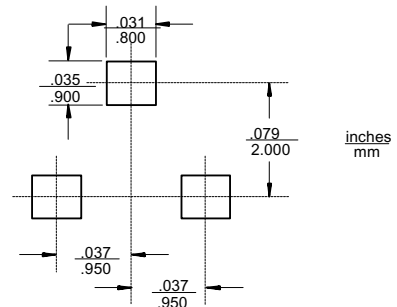
Symbol	Parameter	Rating	Unit
V_{DS}	Drain-source Voltage	50	V
I_D	Drain Current-Continuous	0.22	A
V_{GS}	Gate-source Voltage	± 20	V
P_D	Total Power Dissipation	0.35	W
$R_{\theta JA}$	Thermal Resistance Junction to Ambient ^b	357	°C/W
T_J	Operating Junction Temperature	-55 to +150	°C
T_{STG}	Storage Temperature	-55 to +150	°C

Internal Block Diagram



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.110	.120	2.80	3.04	
B	.083	.098	2.10	2.64	
C	.047	.055	1.20	1.40	
D	.035	.041	.89	1.03	
E	.070	.081	1.78	2.05	
F	.018	.024	.45	.60	
G	.0005	.0039	.013	.100	
H	.035	.044	.89	1.12	
J	.003	.007	.085	.180	
K	.015	.020	.37	.51	

Suggested Solder Pad Layout



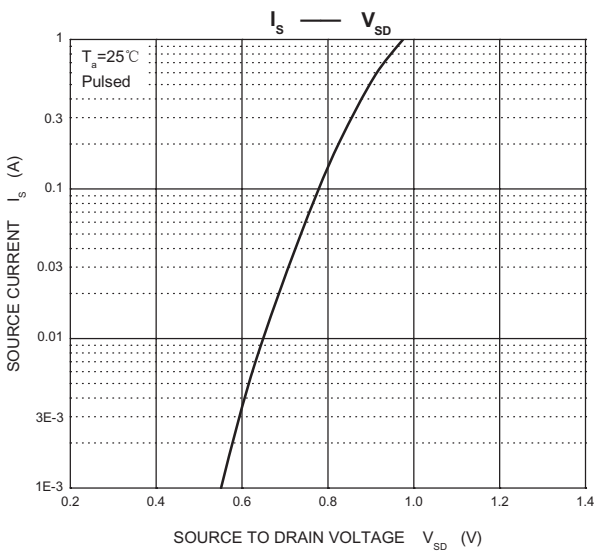
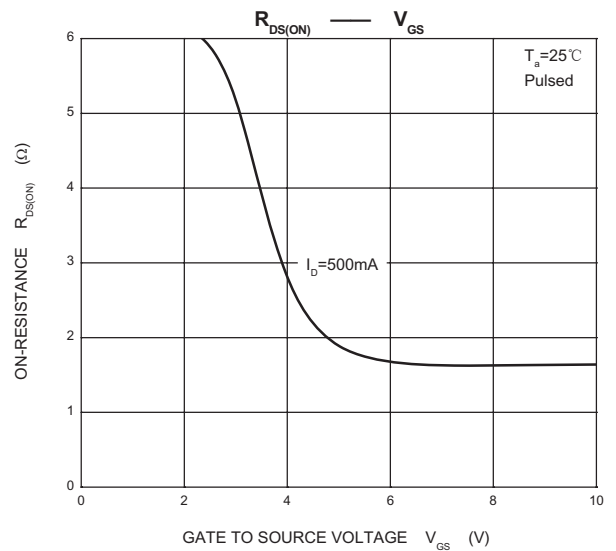
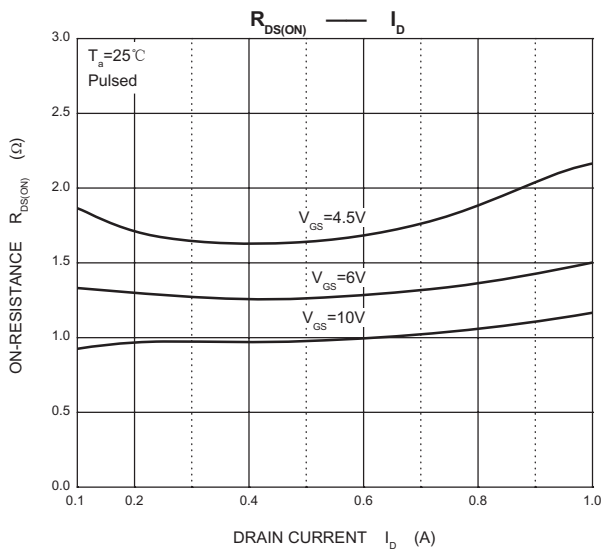
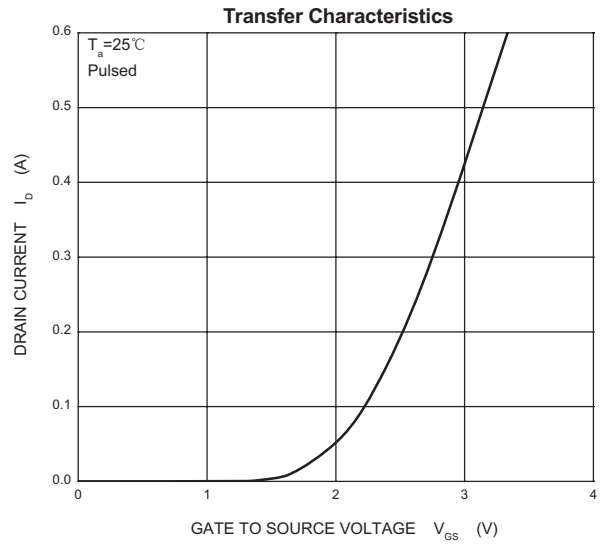
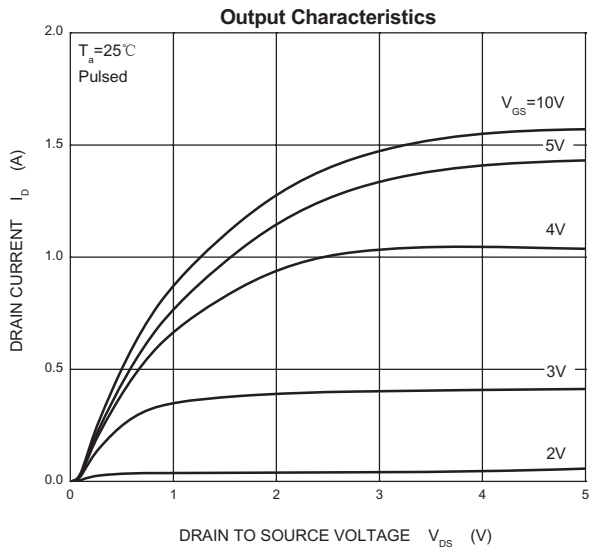
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Electrical characteristics (T_a=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Off characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	50			V
Gate-body leakage	I _{GSS}	V _{DS} = 0V, V _{GS} = ±20V			±100	nA
Zero gate voltage drain current	I _{DSS}	V _{DS} = 50V, V _{GS} = 0V			0.5	μA
		V _{DS} = 30V, V _{GS} = 0V			100	nA
On characteristics						
Gate-threshold voltage (note 1)	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 1mA	0.80		1.50	V
Static drain-source on-resistance (note 1)	R _{DS(on)}	V _{GS} = 10V, I _D = 0.22A			3.50	Ω
		V _{GS} = 4.5V, I _D = 0.22A			6	
Forward transconductance (note 1)	g _{FS}	V _{DS} = 10V, I _D = 0.22A	0.12			S
Dynamic characteristics (note 2)						
Input capacitance	C _{iss}	V _{DS} = 25V, V _{GS} = 0V, f = 1MHz		27	60	pF
Output capacitance	C _{oss}			13	20	
Reverse transfer capacitance	C _{rss}			6	15	
Switching characteristics						
Turn-on delay time (note 1,2)	t _{d(on)}	V _{DD} = 30V, V _{DS} = 10V, I _D = 0.29A, R _{GEN} = 6Ω			5	ns
Rise time (note 1,2)	t _r				18	
Turn-off delay time (note 1,2)	t _{d(off)}				36	
Fall time (note 1,2)	t _f				14	
Drain-source body diode characteristics						
Body diode forward voltage (note 1)	V _{SD}	I _S = 0.44A, V _{GS} = 0V			1.4	V

Notes:

1. Pulse Test ; Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
2. These parameters have no way to verify.





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Ordering Information :

Device	Packing
Part Number-TP	Tape&Reel: 3Kpcs/Reel

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

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