

BSS7728N

SIPMOS[®] Small-Signal-Transistor

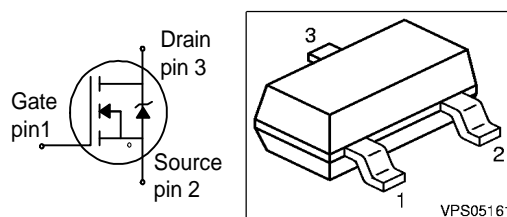
Feature

- N-Channel
- Enhancement mode
- Logic Level
- dv/dt rated

Product Summary

V_{DS}	60	V
$R_{DS(on)}$	5	Ω
I_D	0.2	A

SOT-23



Type	Package	Ordering Code	Tape and Reel Information	Marking
BSS7728N	SOT-23	Q67042-S4189	E6327: 3000 pcs/reel	sSK

Maximum Ratings, at $T_j = 25\text{ }^\circ\text{C}$, unless otherwise specified

Parameter	Symbol	Value	Unit
Continuous drain current $T_A=25\text{ }^\circ\text{C}$ $T_A=70\text{ }^\circ\text{C}$	I_D	0.2 0.16	A
Pulsed drain current $T_A=25\text{ }^\circ\text{C}$	I_D puls	0.8	
Reverse diode dv/dt $I_S=0.2\text{A}$, $V_{DS}=48\text{V}$, $di/dt=200\text{A}/\mu\text{s}$, $T_{jmax}=150\text{ }^\circ\text{C}$	dv/dt	6	kV/ μs
Gate source voltage	V_{GS}	± 20	V
Power dissipation $T_A=25\text{ }^\circ\text{C}$	P_{tot}	0.36	W
Operating and storage temperature	T_j , T_{stg}	-55... +150	$^\circ\text{C}$
IEC climatic category; DIN IEC 68-1		55/150/56	

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Thermal Characteristics

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
Characteristics					
Thermal resistance, junction - ambient at minimal footprint	R_{thJA}	-	-	350	K/W

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
Static Characteristics					
Drain-source breakdown voltage $V_{GS}=0, I_D=250\mu\text{A}$	$V_{(BR)DSS}$	60	-	-	V
Gate threshold voltage, $V_{GS} = V_{DS}$ $I_D=26\mu\text{A}$	$V_{GS(th)}$	1.3	1.9	2.3	
Zero gate voltage drain current $V_{DS}=60\text{V}, V_{GS}=0, T_j=25^\circ\text{C}$ $V_{DS}=60\text{V}, V_{GS}=0, T_j=150^\circ\text{C}$	I_{DSS}	-	-	0.1 5	μA
Gate-source leakage current $V_{GS}=20\text{V}, V_{DS}=0$	I_{GSS}	-	1	10	nA
Drain-source on-state resistance $V_{GS}=4.5\text{V}, I_D=0.05\text{A}$	$R_{DS(on)}$	-	4.3	7.5	Ω
Drain-source on-state resistance $V_{GS}=10\text{V}, I_D=0.5\text{A}$	$R_{DS(on)}$	-	2.7	5	

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

Parameter	Symbol	Conditions	Values			Unit
			min.	typ.	max.	

Dynamic Characteristics

Transconductance	g_{fs}	$V_{DS} \geq 2 \cdot I_D \cdot R_{DS(on)max}$, $I_D = 0.16\text{A}$	0.1	0.2	-	S
Input capacitance	C_{iss}	$V_{GS} = 0$, $V_{DS} = 25\text{V}$,	-	37	56	pF
Output capacitance	C_{oss}	$f = 1\text{MHz}$	-	7.3	11	
Reverse transfer capacitance	C_{rss}		-	2.9	4.4	
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 30\text{V}$, $V_{GS} = 10\text{V}$,	-	2.7	4	ns
Rise time	t_r	$I_D = 0.2\text{A}$, $R_G = 6\Omega$	-	2.7	4.1	
Turn-off delay time	$t_{d(off)}$		-	6.1	9.1	
Fall time	t_f		-	9	13	

Gate Charge Characteristics

Gate to source charge	Q_{gs}	$V_{DD} = 48\text{V}$, $I_D = 0.2\text{A}$	-	0.12	0.18	nC
Gate to drain charge	Q_{gd}		-	0.43	0.65	
Gate charge total	Q_g	$V_{DD} = 48\text{V}$, $I_D = 0.2\text{A}$, $V_{GS} = 0$ to 10V	-	1	1.5	
Gate plateau voltage	$V_{(plateau)}$	$V_{DD} = 48\text{V}$, $I_D = 0.2\text{A}$	-	3.8	-	V

Reverse Diode

Inverse diode continuous forward current	I_S	$T_A = 25\text{ }^\circ\text{C}$	-	-	0.2	A
Inv. diode direct current, pulsed	I_{SM}		-	-	0.8	
Inverse diode forward voltage	V_{SD}	$V_{GS} = 0$, $I_F = I_S$	-	0.84	1.2	V
Reverse recovery time	t_{rr}	$V_R = 30\text{V}$, $I_F = I_S$,	-	11.5	17.5	ns
Reverse recovery charge	Q_{rr}	$di_F/dt = 100\text{A}/\mu\text{s}$	-	2.6	4	