



THE DATASHEET OF BSS131



Features

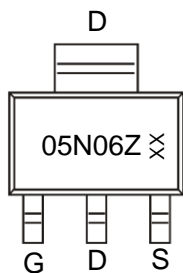
- Excellent package for good heat dissipation
- Ultra low gate charge
- Low reverse transfer capacitance
- Fast switching capability
- Avalanche energy specified

Application

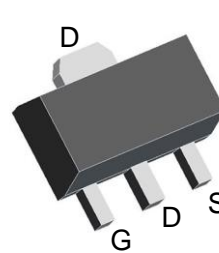
- Power switching application

Product Summary

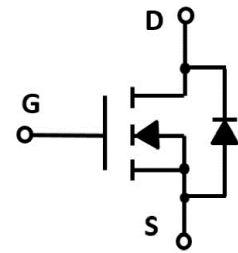
V_{DS}	$R_{DS(ON)}$ MAX	I_D MAX
60V	100mΩ@10V	5A
	150mΩ@4.5V	



05N06Z: Device code
XX: Code



SOT-89 top view



Schematic diagram

Marking and pin assignment

Absolute Maximum Ratings (TA=25°C unless otherwise noted)				
Symbol	Parameter		Rating	Unit
Common Ratings (TC=25°C Unless Otherwise Noted)				
V_{DS}	Drain-Source Breakdown Voltage		60	V
V_{GS}	Gate-Source Voltage		±20	V
T_J	Maximum Junction Temperature		150	°C
T_{STG}	Storage Temperature Range		-55 to 150	°C
I_S	Diode Continuous Forward Current	$T_c=25^\circ\text{C}$	5	A
Mounted on Large Heat Sink				
I_{DM}	Pulse Drain Current Tested	$T_c=25^\circ\text{C}$	20	A
I_D	Continuous Drain Current@GS=10V	$T_c=25^\circ\text{C}$	5	A
P_D	Maximum Power Dissipation	$T_c=25^\circ\text{C}$	0.5	W
$R_{\theta JA}$	Thermal Resistance Junction-Ambient>(*1 in2 Pad of 2-oz Copper), Max.)		200	°C/W

Electrical Characteristics (T_J=25°C unless otherwise noted)						
Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ T_J = 25°C (unless otherwise stated)						
BV _{(BR)DSS}	Drain-Source Breakdown Voltage	VGS=0V, ID=250μA	60	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current	VDS=60V, VGS=0V	--	--	1	μA
I _{GSS}	Gate-Body Leakage Current	VGS=±20V, VDS=0V	--	--	±100	nA
V _{GS(th)}	Gate Threshold Voltage	VDS=VGS, ID=250μA	1.1	1.7	2.5	V
R _{DS(on)}	Drain-Source On-State Resistance	VGS=10V, ID=3A	--	58	100	mΩ
		VGS=4.5V, ID=2A	--	70	150	
Dynamic Electrical Characteristics @ T_J = 25°C (unless otherwise stated)						
C _{ISS}	Input Capacitance	VDS=30V, VGS=0V, f=1MHz	--	400	--	pF
C _{OSS}	Output Capacitance		--	28	--	pF
C _{RSS}	Reverse Transfer Capacitance		--	23	--	pF
Switching Characteristics						
Q _g	Total Gate Charge	VDS=30V, ID=3A, VGS=10V	--	9	--	nC
Q _{gs}	Gate Source Charge		--	1	--	nC
Q _{gd}	Gate Drain Charge		--	2.5	--	nC
t _{d(on)}	Turn-on Delay Time	VDD=30V, ID=3A, VGS=10V, RG=2.3Ω	--	4	--	nS
t _r	Turn-on Rise Time		--	10	--	nS
t _{d(off)}	Turn-Off Delay Time		--	12.5	--	nS
t _f	Turn-Off Fall Time		--	1.8	--	nS
Source- Drain Diode Characteristics						
V _{SD}	Forward on voltage	T _J =25°C, I _s =3A,	--	0.8	1.2	V

Typical Operating Characteristics

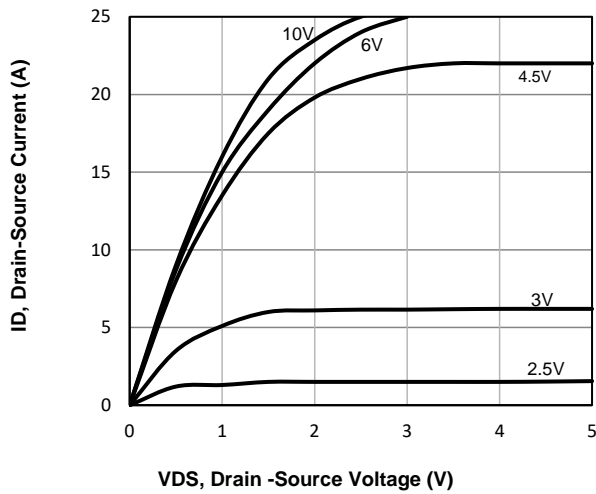


Fig1. Typical Output Characteristics

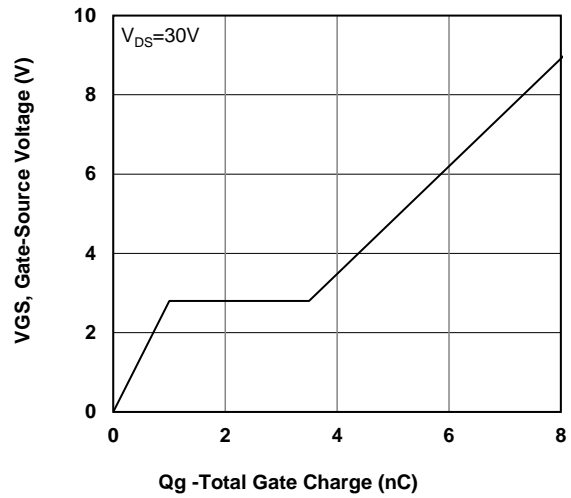


Fig2. Typical Gate Charge Vs. Gate-Source Voltage

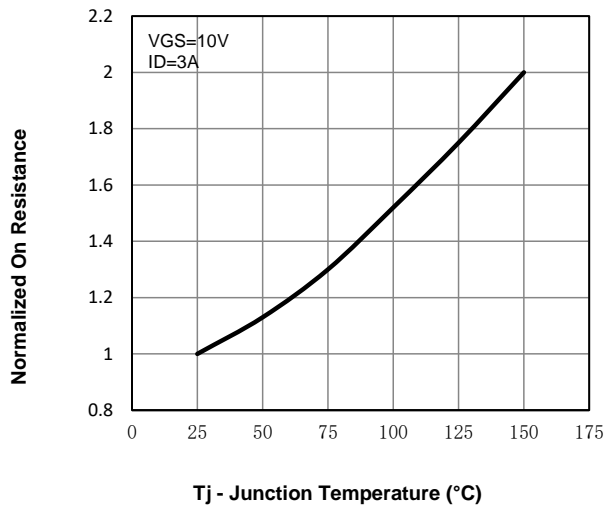


Fig3. Normalized On-Resistance Vs. Temperature

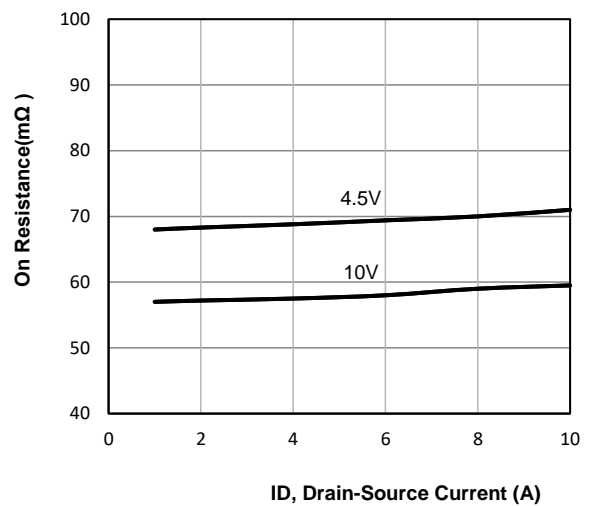


Fig4. On-Resistance Vs. Drain-Source Current

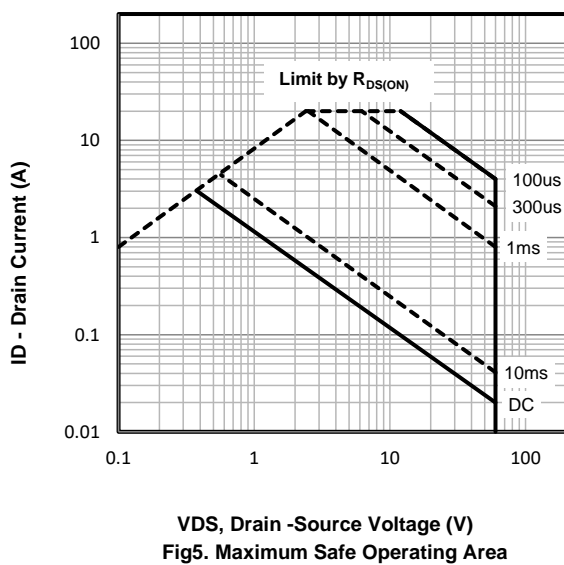


Fig5. Maximum Safe Operating Area

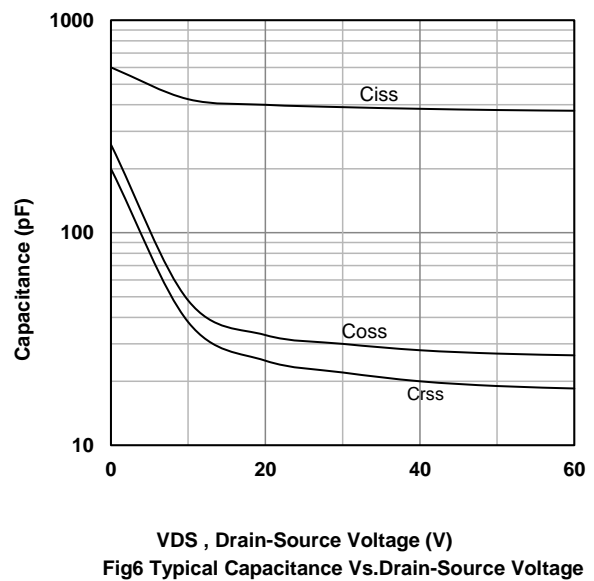
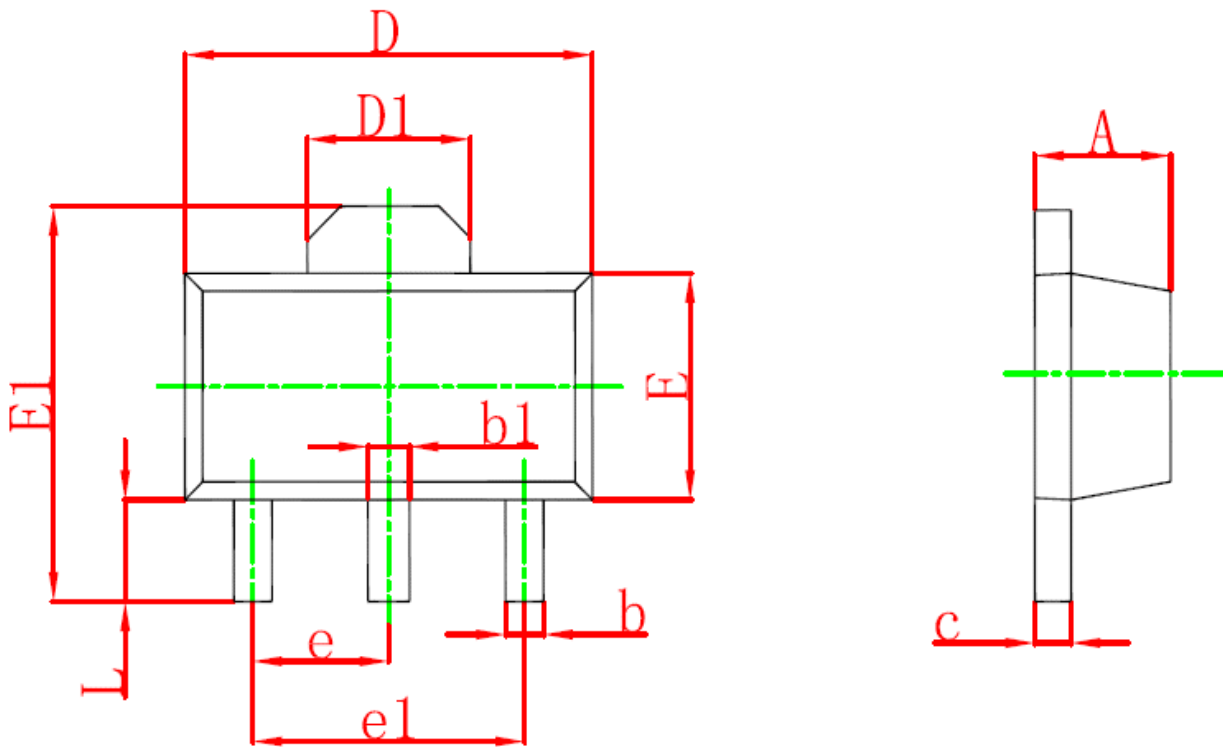


Fig6. Typical Capacitance Vs. Drain-Source Voltage

SOT-89 Package information


Symbol	Dimensions in Millimeters(mm)		Dimensions in Inches	
	Min	Max	Min	Max
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550 REF		0.061 REF	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500 TYP		0.060 TYP	
e1	3.000 TYP		0.118 TYP	
L	0.900	1.200	0.035	0.047

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