

## Features

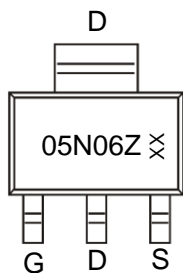
- Excellent package for good heat dissipation
- Ultra low gate charge
- Low reverse transfer capacitance
- Fast switching capability
- Avalanche energy specified

## Application

- Power switching application

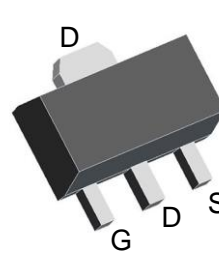
## Product Summary

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

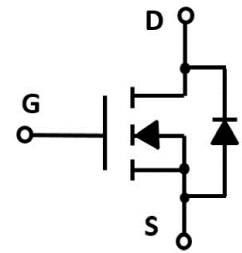


05N06Z: Device code  
XX: Code

Marking and pin assignment



SOT-89 top view



Schematic diagram

## Absolute Maximum Ratings (TA=25°C unless otherwise noted)

Symbol	Parameter	Rating	Unit
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### Common Ratings (TC=25°C Unless Otherwise Noted)

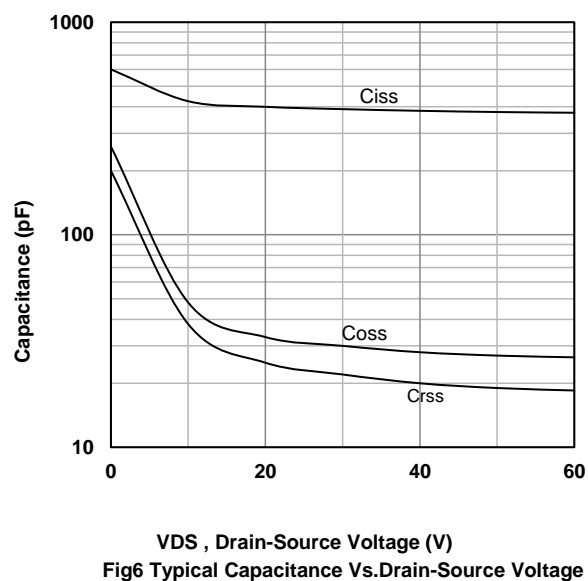
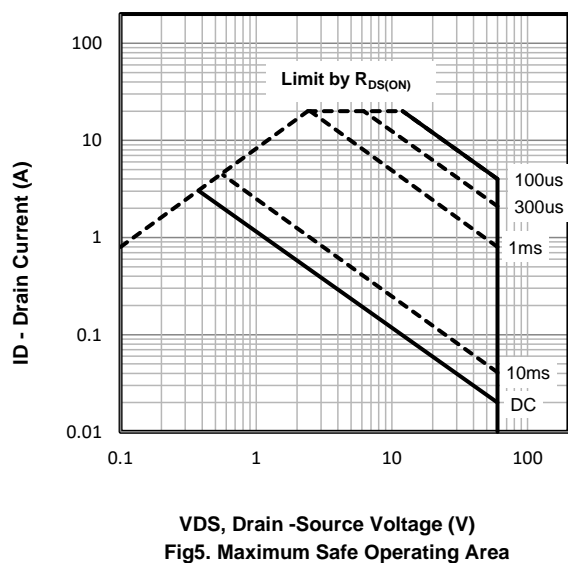
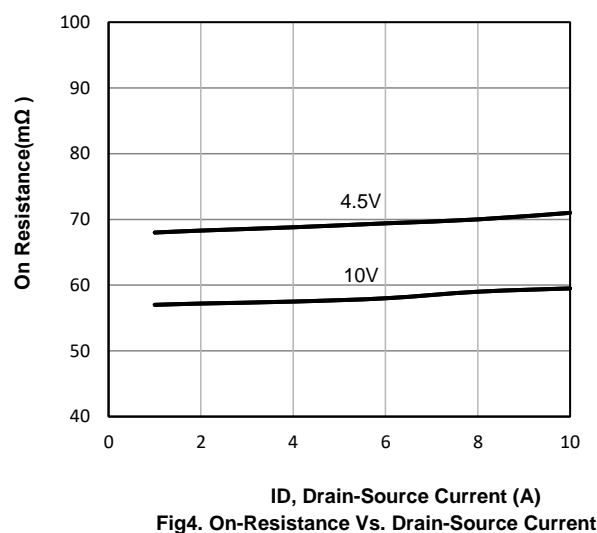
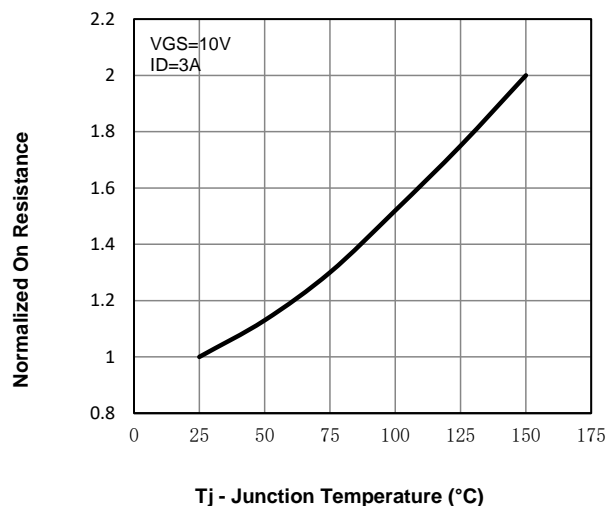
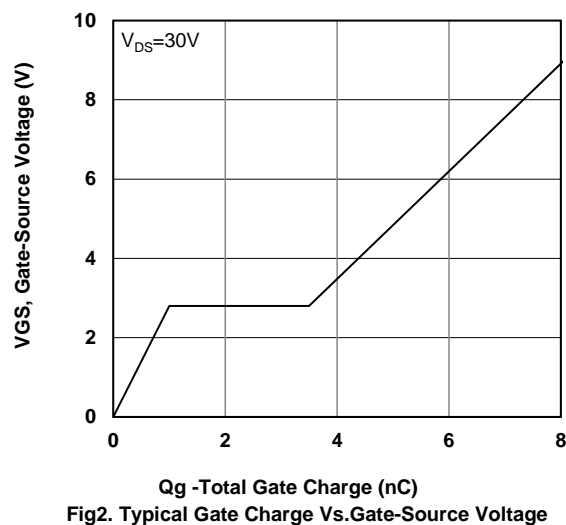
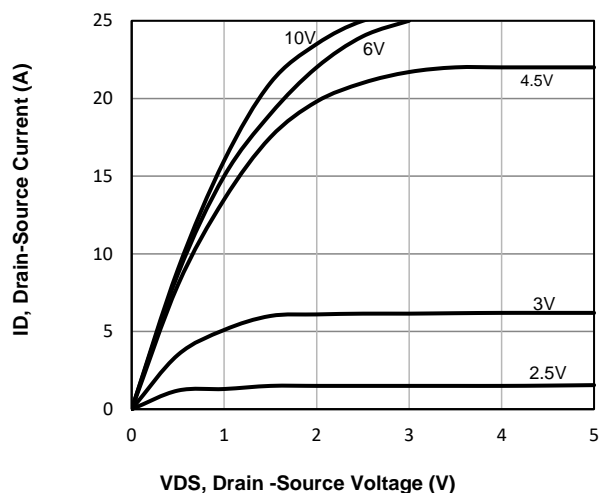
$V_{DS}$	Drain-Source Breakdown Voltage	60	V
$V_{GS}$	Gate-Source Voltage	±20	V
$T_J$	Maximum Junction Temperature	150	°C
$T_{STG}$	Storage Temperature Range	-55 to 150	°C
$I_S$	Diode Continuous Forward Current	$T_C=25^\circ\text{C}$ 5	A

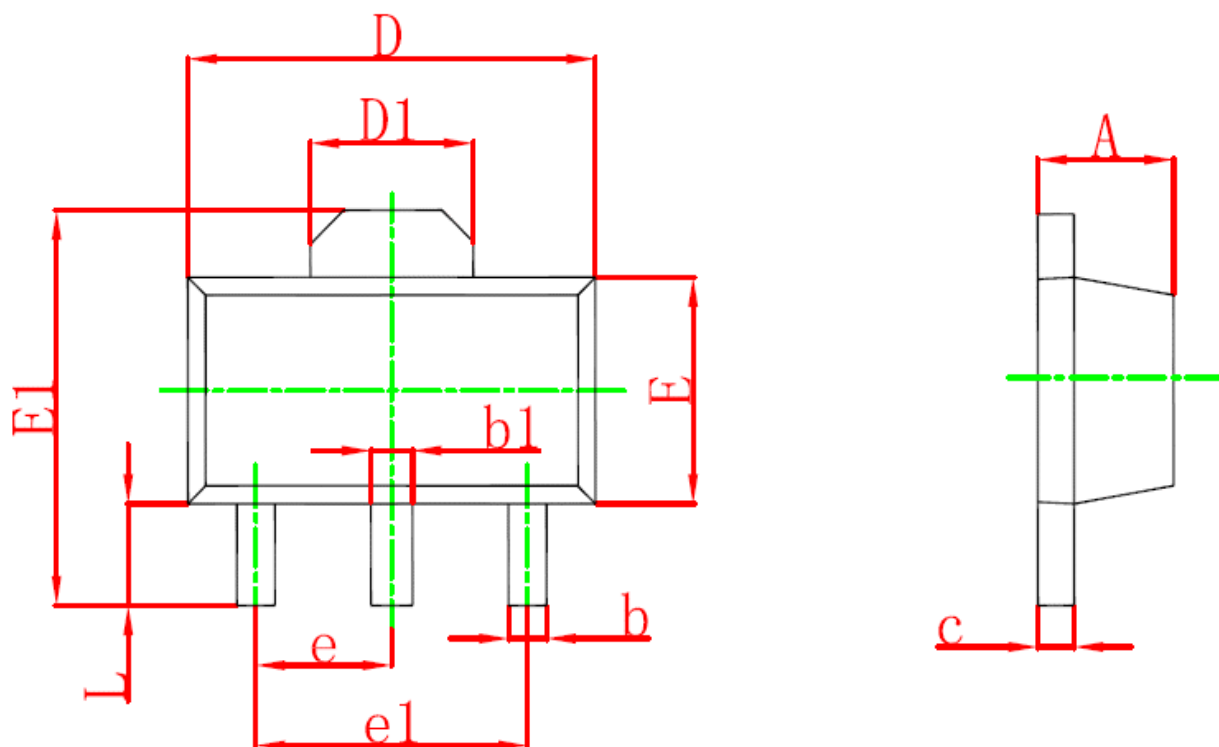
### Mounted on Large Heat Sink

$I_{DM}$	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 <sub>J</sub> =25℃ unless otherwise noted)						
Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ T <sub>J</sub> = 25℃ (unless otherwise stated)						
B <sub>V(BR)DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> =250μA	60	--	--	V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> =60V, V <sub>GS</sub> =0V	--	--	1	uA
I <sub>GSS</sub>	Gate-Body Leakage Current	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V	--	--	±100	nA
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	1.1	1.7	2.5	V
R <sub>DS(on)</sub>	Drain-Source On-State Resistance	V <sub>GS</sub> =10V, I <sub>D</sub> =3A	--	58	100	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =2A	--	70	150	
Dynamic Electrical Characteristics @ T <sub>J</sub> = 25℃ (unless otherwise stated)						
C <sub>ISS</sub>	Input Capacitance	V <sub>DS</sub> =30V, V <sub>GS</sub> =0V, f=1MHz	--	400	--	pF
C <sub>OSS</sub>	Output Capacitance		--	28	--	pF
C <sub>RSS</sub>	Reverse Transfer Capacitance		--	23	--	pF
Switching Characteristics						
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> =30V, I <sub>D</sub> =3A, V <sub>GS</sub> =10V	--	9	--	nC
Q <sub>gs</sub>	Gate Source Charge		--	1	--	nC
Q <sub>gd</sub>	Gate Drain Charge		--	2.5	--	nC
t <sub>d(on)</sub>	Turn-on Delay Time	V <sub>DD</sub> =30V, I <sub>D</sub> =3A, V <sub>GS</sub> =10V, R <sub>G</sub> =2.3Ω	--	4	--	nS
t <sub>r</sub>	Turn-on Rise Time		--	10	--	nS
t <sub>d(off)</sub>	Turn-Off Delay Time		--	12.5	--	nS
t <sub>f</sub>	Turn-Off Fall Time		--	1.8	--	nS
Source- Drain Diode Characteristics						
V <sub>SD</sub>	Forward on voltage	T <sub>J</sub> =25℃, I <sub>S</sub> =3A,	--	0.8	1.2	V

## Typical Operating Characteristics



**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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