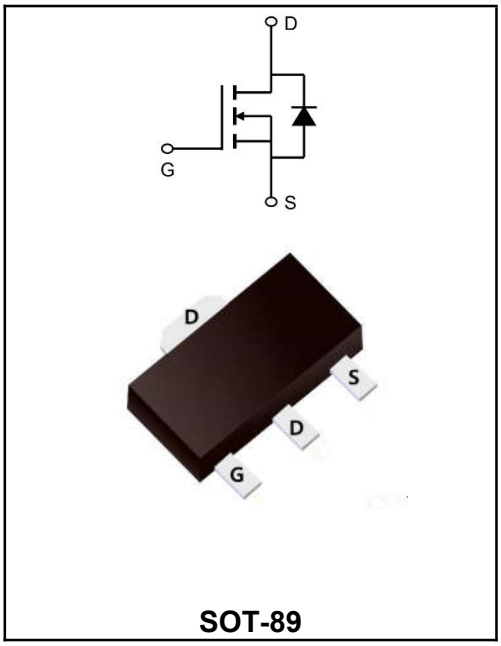
100V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	5A
V_{DSS}	100V
R_{DSON}-typ(@V_{GS}=10V)	< 140mΩ(Type:110 mΩ)



SOT-89

Application

- LED lighting
- Load switch
- Atomizer

Marking Code	
YFW5N10BSI	5N10

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	100	V
Gate - Source Voltage	V_{GS}	±20	V
Continuous drain current1), TC=25 ℃	I_D	5	A
Pulsed drain current2), TC=25 ℃	I_{DM}	15	A
Power dissipation3), TC=25 ℃	P_D	0.5	W
Single pulsed avalanche energy[5]	E_{AS}	1.2	mJ
Operation and storage temperature	T_{STG}, T_J	-55 to +150	°C
Thermal Resistance Junction-Case	$R_{\theta JC}$	7.4	°C/W
Thermal Resistance, Junction-to-Ambient [4]	$R_{\theta JA}$	250	°C/W

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250uA	BV_{DSS}	100	-	-	V
Gate -Threshold Voltage	V_{DS}=V_{GS}, I_D=250uA	$V_{GS(th)}$	1.2	1.5	2.5	V
Drain-source on-state resistance	V_{GS}=10V, I_D=5A	$R_{DS(ON)}$	-	110	140	mΩ
	V_{GS}=4.5V, I_D=3A		-	160	250	
Gate-Source Leakage Current	V_{GS}=20V	I_{GSS}	-	-	100	nA
	V_{GS}=20V		-	-	-100	
Gate -Source Leakage Current	V_{DS}=100V , V_{GS}=0V	I_{DSS}	-	-	1	μA
Input Capacitance	V_{DS}=50V V_{GS}=0V f=100MHz	C_{iss}	-	206.1	-	pF
Output Capacitance		C_{oss}	-	28.9	-	
Reverse Transfer Capacitance		C_{rss}	-	1.4	-	
Turn-on delay time	V_{GS}=10V V_{DS}=50V R_G=2Ω I_D=5A	$t_{d(on)}$	-	14.7	-	ns
Rise Time		T_r	-	3.5	-	
Turn-Off Delay Time		$t_{d(OFF)}$	-	20.9	-	
Fall Time		t_f	-	2.7	-	
Total Gate Charge	I_D=5A V_{DS}=50V V_{GS}=10V	Q_g	-	4.3	-	nC
Gate-Source Charge		Q_{gs}	-	1.5	-	
Gate-Drain Charge		Q_{gd}	-	1.1	-	
Gate plateau voltage		Vplateau		5.0	-	V
Diode forward current	VGS<Vth	I_S	-	-	7	A
Pulsed Source Current		I_{SP}	-	-	21	
Diode Forward Voltage	V_{GS}=0V , I_S=7A	V_{SD}	-	-	1.0	V
Reverse Recovery Time	I_F=5A , dI/dt=100A/μs	t_{rr}	-	32.1	-	ns
Reverse Recovery Charge		Q_{rr}	-	39.4	-	nC
Peak reverse recovery current		I_{rrm}	-	2.1	-	A

Note :
1、The data tested by surface mounted on a 1 inch2 FR-4 board with 2OZ copper.
2、The data tested by pulsed , pulse width .The EAS data shows Max. rating .
3、The power dissipation is limited by 150℃ junction temperature
4、The data is theoretically the same as ID and IDM , in real applications , should be limited by total power dissipation.

Ratings and Characteristic Curves

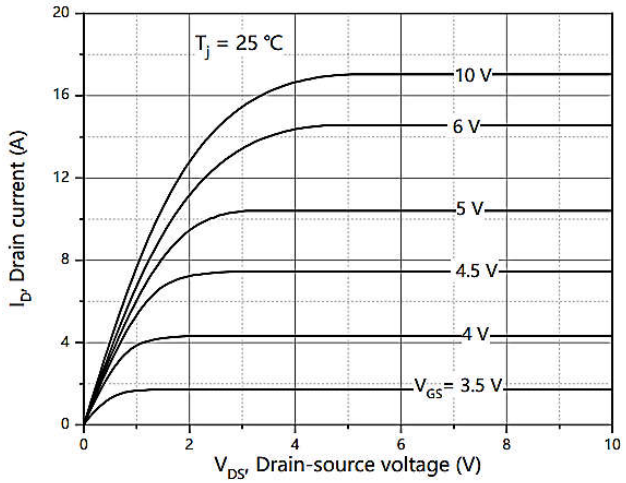


Figure 1. Typ. output characteristics

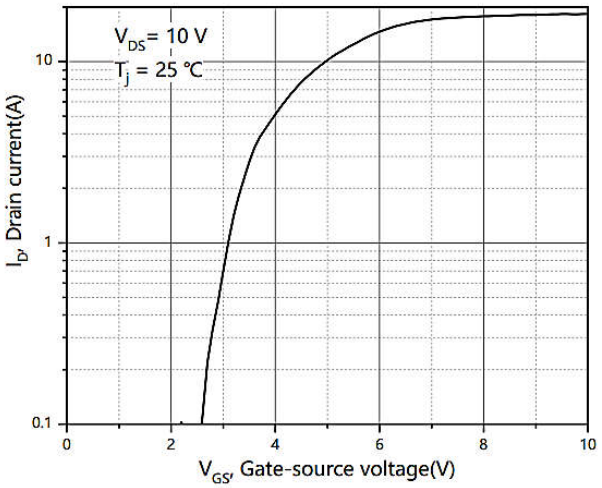


Figure 2. Typ. transfer characteristics

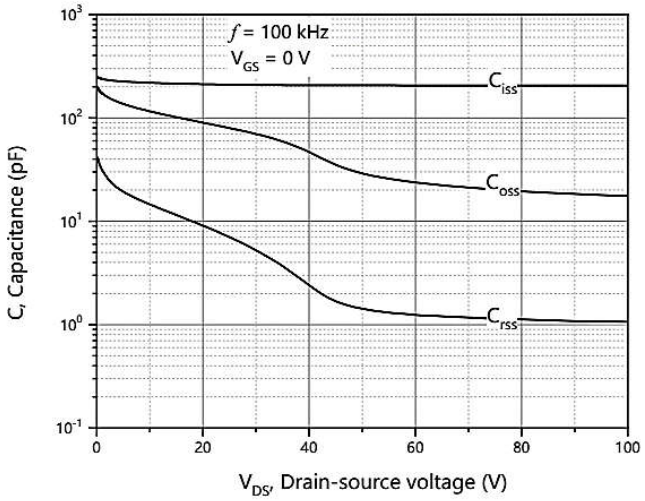


Figure 3. Typ. capacitances

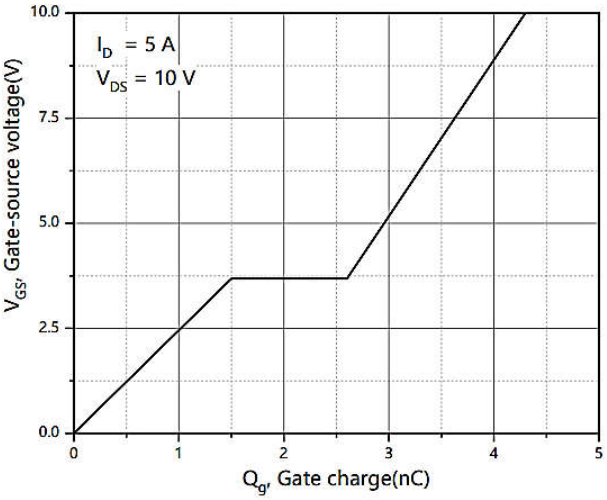


Figure 4. Typ. gate charge

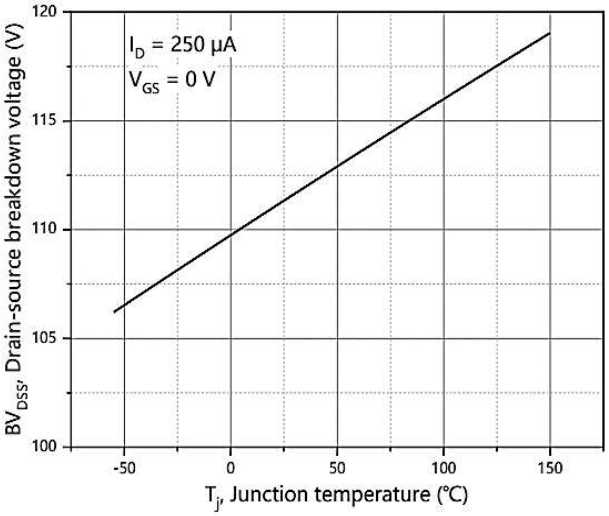


Figure 5. Drain-source breakdown voltage

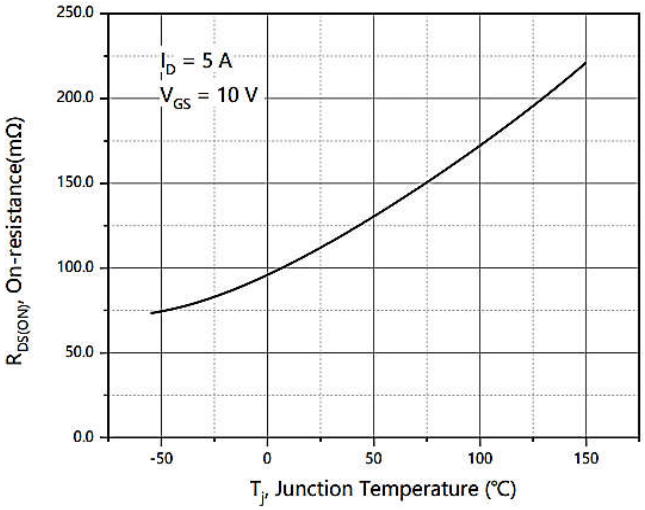


Figure 6. Drain-source on-state resistance

Ratings and Characteristic Curves

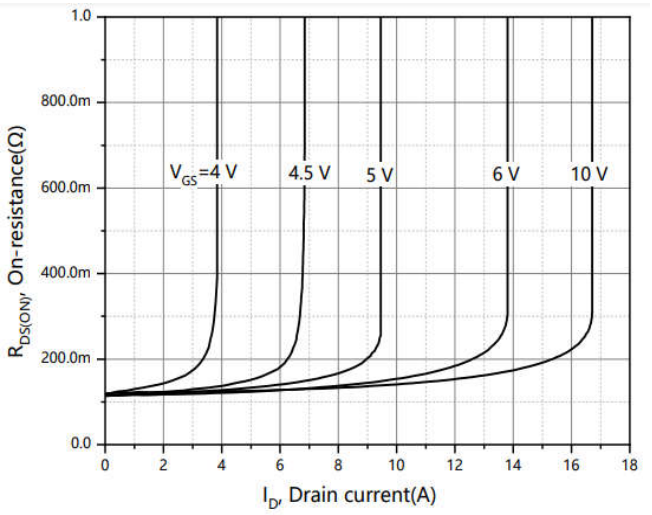


Figure 7. Drain-source on-state resistance

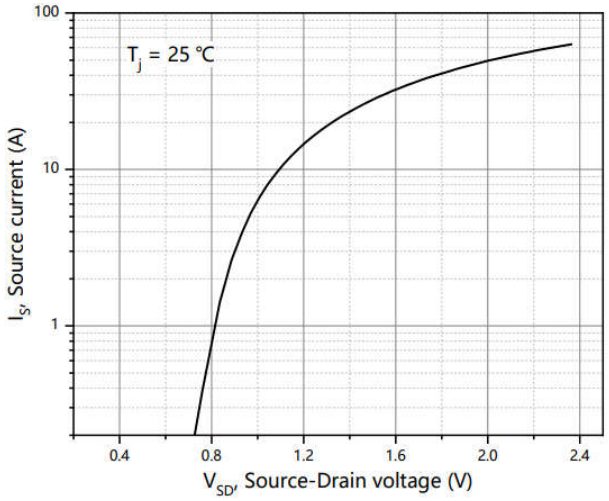


Figure 8. Forward characteristic of body diode

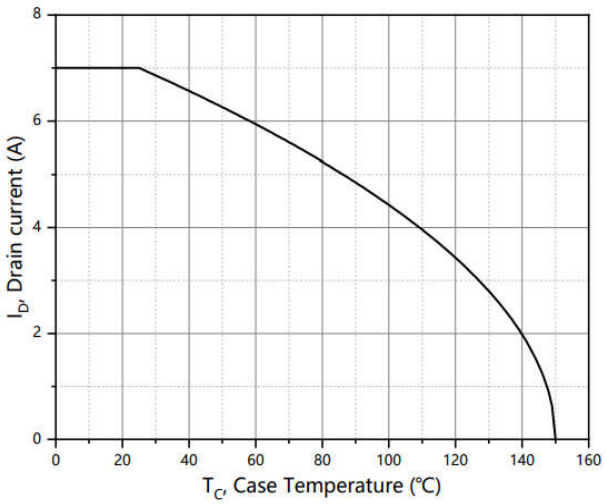


Figure 9. Drain current

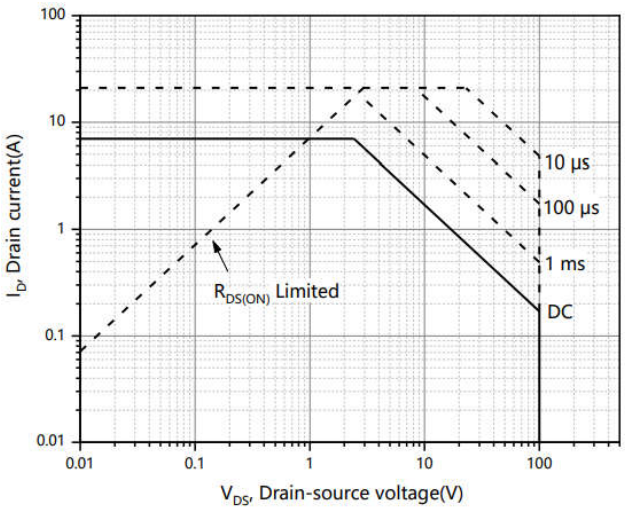


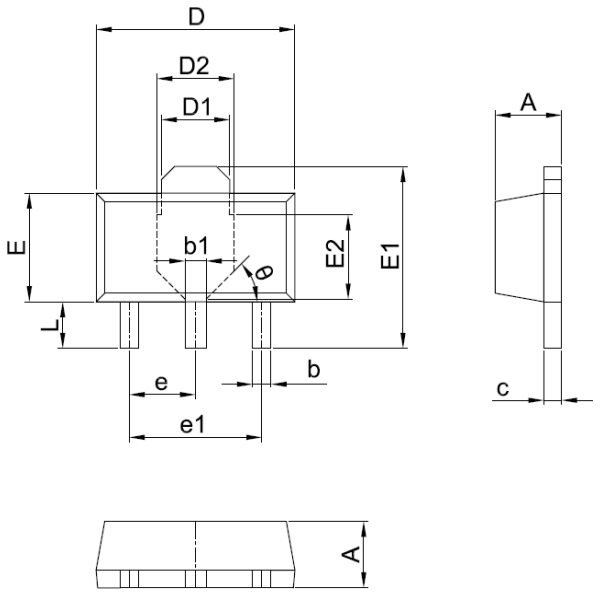
Figure 10. Safe operation area T_C=25 ℃

Ordering information

Package	Packing Description	Base Quantity	Packing Quantity
SOT-89	Tape/Reel,7"reel	1000pcs/Reel	6000PCS/Box 30000PCS/Carton

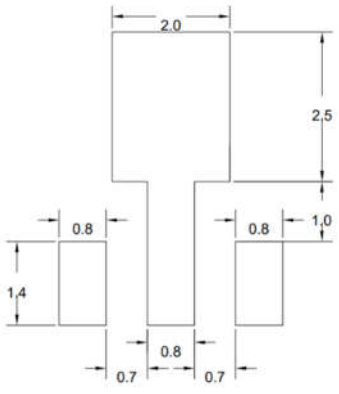
Package Dimensions

SOT-89



Dim	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	1.40	1.60	0.055	0.063
b	0.32	0.52	0.013	0.020
b1	0.38	0.58	0.015	0.023
c	0.35	0.45	0.014	0.018
D	4.40	4.60	0.173	0.181
D1	1.45	1.65	0.057	0.065
D2	1.70	1.80	0.067	0.071
E	2.30	2.60	0.091	0.102
E1	3.95	4.25	0.156	0.167
E2	1.80	2.00	0.071	0.079
e	1.40	1.60	0.055	0.063
e1	2.80	3.20	0.110	0.126
L	0.90	1.20	0.035	0.047

The recommended mounting pad size



UNIT:MM

Disclaimer

The information presented in this document is for reference only. GuangDong Youfeng Microelectronics Co.,Ltd. reserves the right to make changes without notice for the specification of the products displayed herein to improve reliability, function or design or otherwise. The product listed herein is designed to be used with ordinary electronic equipment or devices, and not designed to be used with equipment or devices which require high level of reliability and the malfunction of with would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices),YFW or anyone on its behalf, assumes no responsibility or liability for any damages resulting from such improper use of sale. This publication supersedes & replaces all information previously supplied. For additional information, please visit our website https://www.yfwdiode.com, or consult YFW sales office for further assistance.