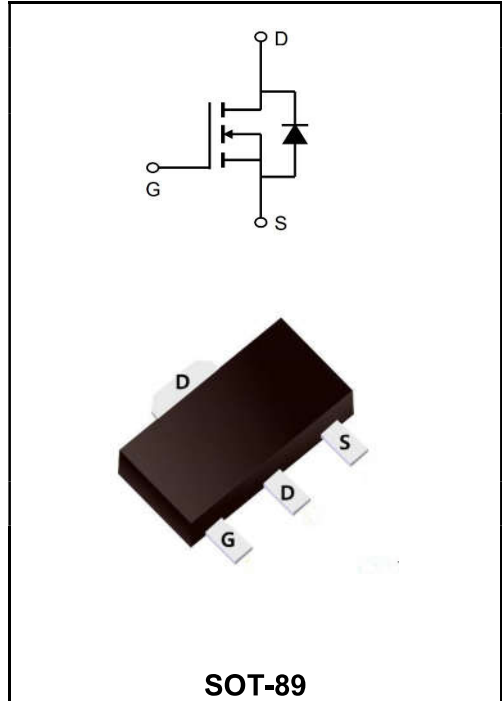


100V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

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



Application

- ◆ LED lighting
- ◆ Load switch
- ◆ Atomizer

Product Specification Classification

Part Number	Package	Marking	Pack
YFW5N10BSI	SOT-89	N1012	3000PCS/Tape

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 current ¹⁾ , TC=25 °C	I_D	5	A
Pulsed drain current ²⁾ , TC=25 °C	I_{DM}	15	A
Power dissipation ³⁾ , TC=25 °C	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	$V_{GS}=0V, I_D=250\mu A$	BV_{DSS}	100	-	-	V
Gate -Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	$V_{GS(th)}$	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	$V_{GS}=10V$ $V_{DS}=50V$ $R_G=2\Omega$ $I_D=5A$	$t_{d(on)}$	-	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		$V_{plateau}$	-	5.0	-	
Diode forward current	$V_{GS}<V_{th}$	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	$I_F=5A, di/dt=100A/\mu s$	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°C 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

Typical Characteristics

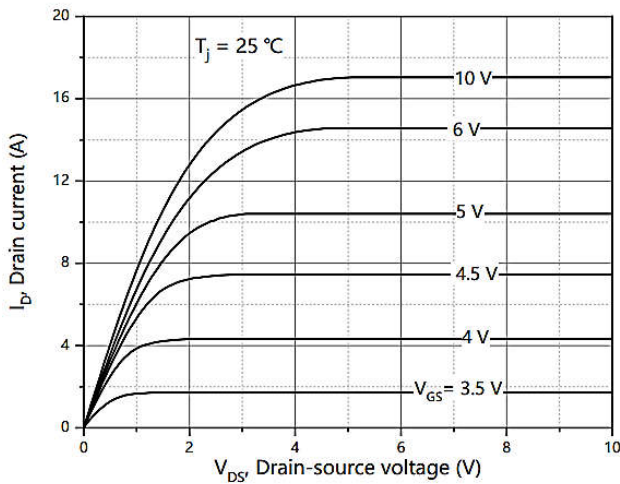


Figure 1. Typ. output characteristics

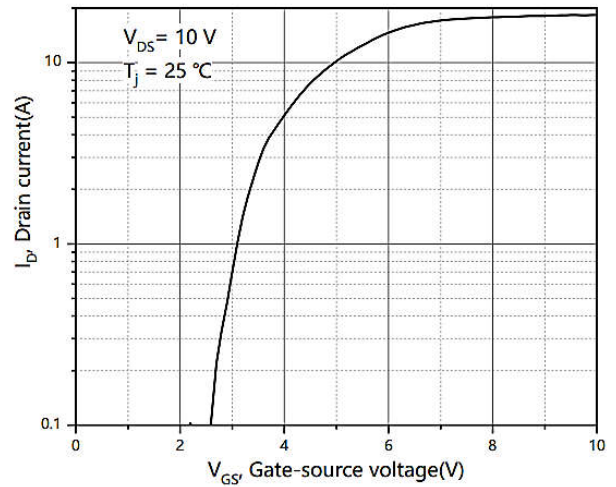


Figure 2. Typ. transfer characteristics

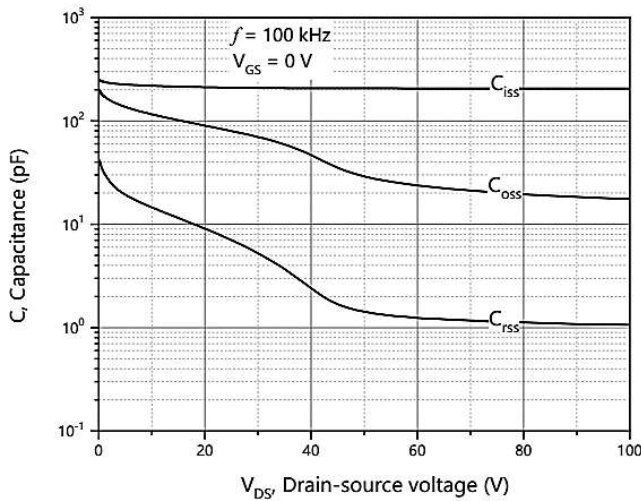


Figure 3. Typ. capacitances

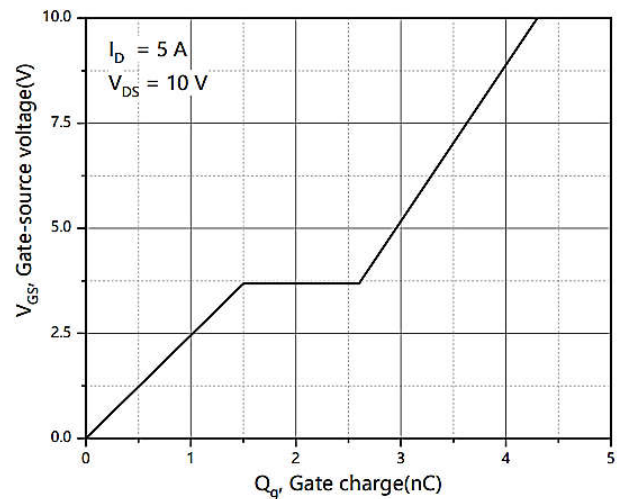


Figure 4. Typ. gate charge

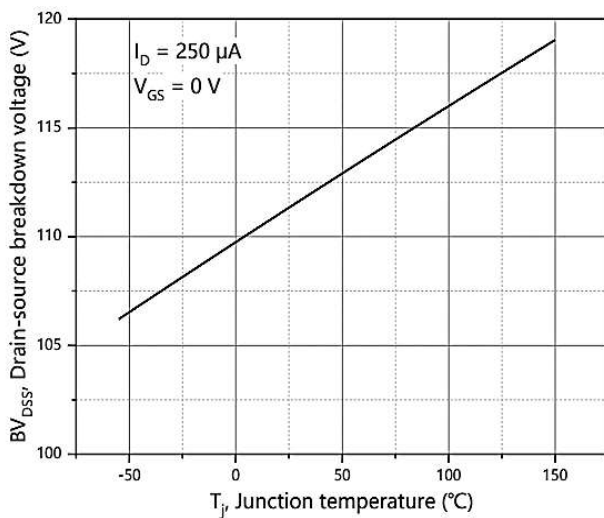


Figure 5. Drain-source breakdown voltage

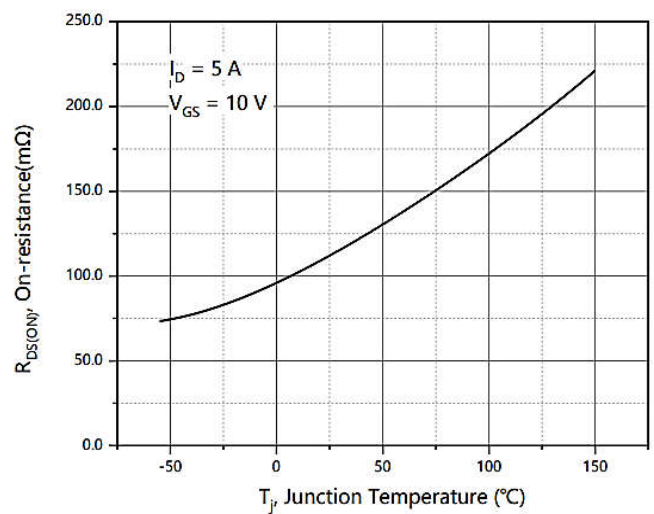


Figure 6. Drain-source on-state resistance

Ratings and Characteristic Curves

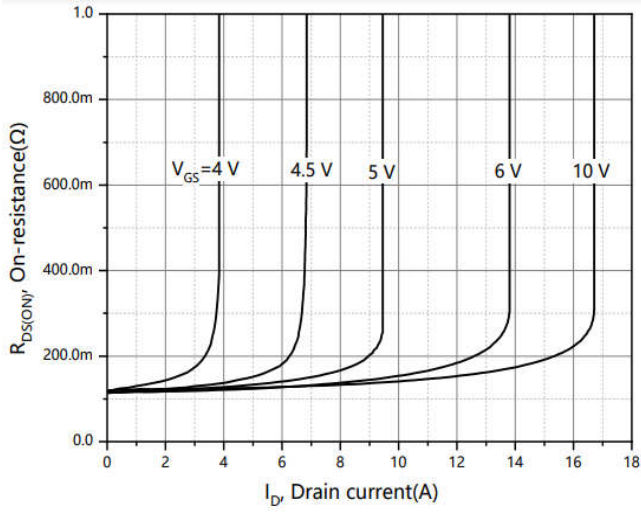


Figure 7. Drain-source on-state resistance

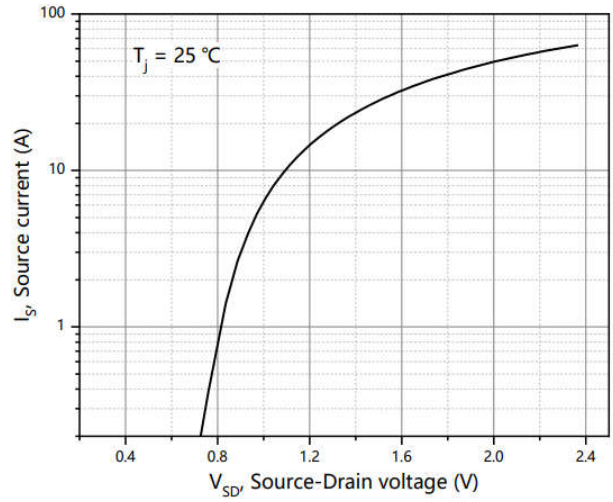


Figure 8. Forward characteristic of body diode

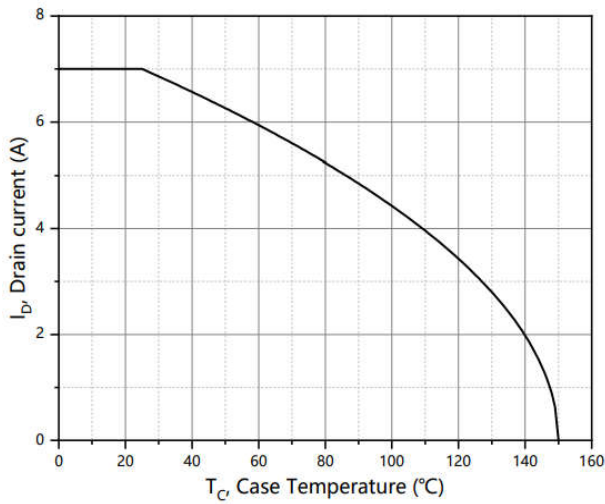


Figure 9. Drain current

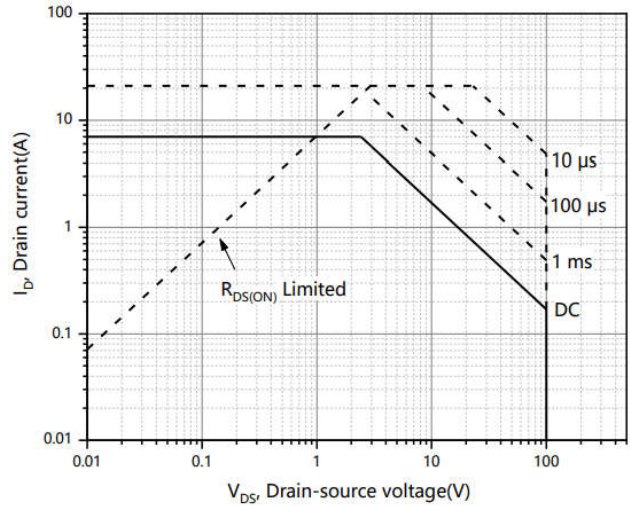
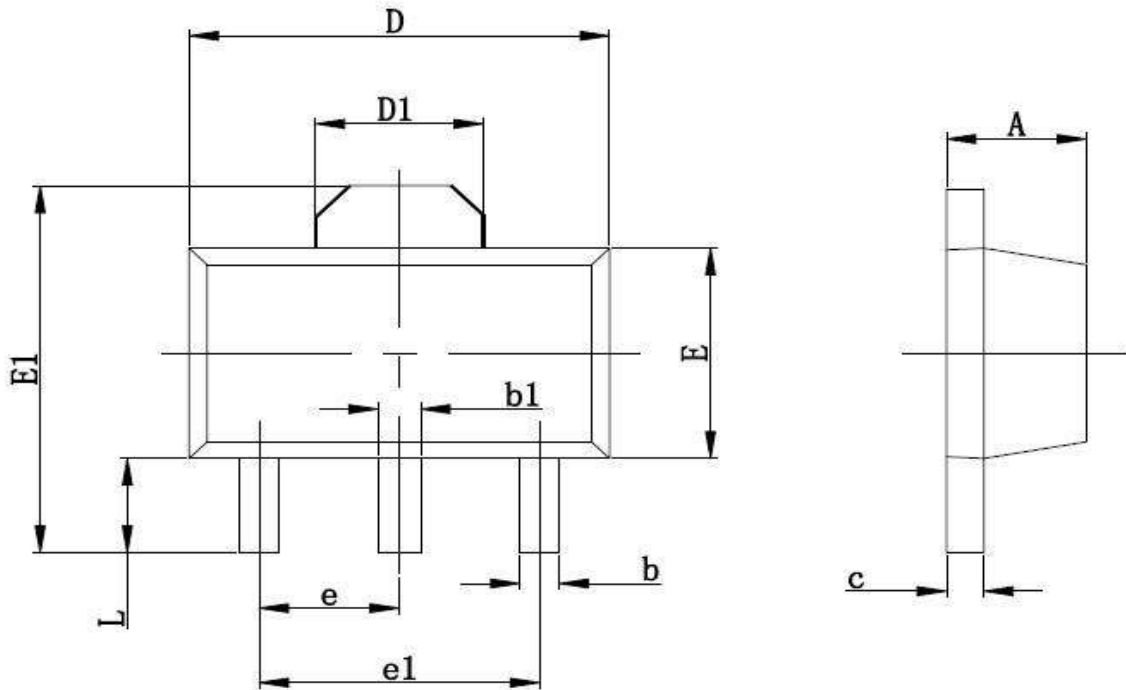


Figure 10. Safe operation area $T_C=25\text{ °C}$

SOT-89



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.400	1.600	0.055	0.063
b	0.350	0.520	0.013	0.197
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	2.350	2.550	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500 TYP		0.060TYP	
e1	3.000 TYP		0.118TYP	
L	0.900	1.100	0.035	0.047

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