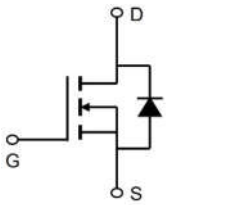
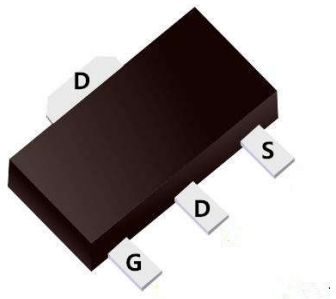
60V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	8.5A
V_{DSS}	60V
R_{DSON}-typ(@V_{GS}=10V)	< 35mΩ(Type:28 mΩ)





SOT-89

Marking Code	
YFW8N06SI	YFW8N06SI

Application

- Battery protection
- Load switch
- Uninterruptible power supply

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	60	V
Gate - Source Voltage	V_{GS}	±20	V
Continuous Drain Current, V_{GS} @ 10V[1] @T_A=25℃	I_D	8.5	A
Continuous Drain Current, V_{GS} @ 10V[1] @T_A=70℃	I_D	5.8	A
Pulsed Drain Current[2]	I_{DM}	14.6	A
Single Pulse Avalanche Energy[3]	E_{AS}	21.5	mJ
Avalanche Current	I_{AS}	20.6	A
Total Power Dissipation[4] @T_A=25℃	P_D	1.2	W
Storage Temperature Range	T_{STG}	-55 to +150	°C
Operating Junction Temperature Range	T_J	-55 to +150	°C
Thermal Resistance Junction-ambient [1]	$R_{\theta JA}$	62.5	°C/W
Thermal Resistance Junction-Case[1]	$R_{\theta JC}$	36	°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	V(BR)DSS	60	65	-	V
Zero Gate Voltage Drain Current	V_{DS}=60V , V_{GS}=0V	I_{DSS}	-	-	1.0	μA
Gate to Body Leakage Current	V_{GS}=±20V, V_{DS}=0V	I_{GSS}	-	-	±100	nA
Gate -Threshold Voltage	V_{DS}=V_{GS}, I_D=250uA	$V_{GS(th)}$	1.0	1.6	2.5	V
Static Drain-Source on-Resistance note3	V_{GS}=10V, I_D=10A	$R_{DS(ON)}$	-	28	40	mΩ
	V_{GS}=4.5V, I_D=5A		-	33	45	
Input Capacitance	V_{DS}=25V V_{GS}=0V f=1.0MHz	C_{iss}	-	1148	-	pF
Output Capacitance		C_{oss}	-	58.5	-	
Reverse Transfer Capacitance		C_{rss}	-	49.4	-	
Total Gate Charge	V_{DS}=30V V_{GS}=10V I_D=10A	Q_g	-	20.3	-	nC
Gate-Source Charge		Q_{gs}	-	3.7	-	
Gate-Drain("Miller") Charge		Q_{gd}	-	5.3	-	
Turn-on delay time	V_{DS}=30V I_D=20A R_G=1.8Ω V_{GS}=10V	$t_{d(on)}$	-	7.6	-	ns
Turn-on Rise Time		T_r	-	20	-	
Turn-Off Delay Time		$t_{d(OFF)}$	-	15	-	
Turn-Off Fall Time		t_f	-	24	-	
Maximum Continuous Drain to Source Diode Forward Current		I_S	-	-	20	A
Maximum Pulsed Drain to Source Diode Forward Current		I_{SM}	-	-	80	A
Drain to Source Diode Forward Voltage	V_{GS}=0V , I_S=20A	V_{SD}	-	-	1.2	V
Body Diode Reverse Recovery Time	I_F=20A,dI/dt=100A /μs	t_{rr}	-	29	-	ns
Body Diode Reverse Recovery Charge		Q_{rr}	-	43	-	nC

Notes:
1、 Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2、 EAS condition : T J =25℃, V DD =30V, V G =10V, L=0.5mH, Rg=25Ω, IAS =3.5A
3、 Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%

Ratings and Characteristic Curves

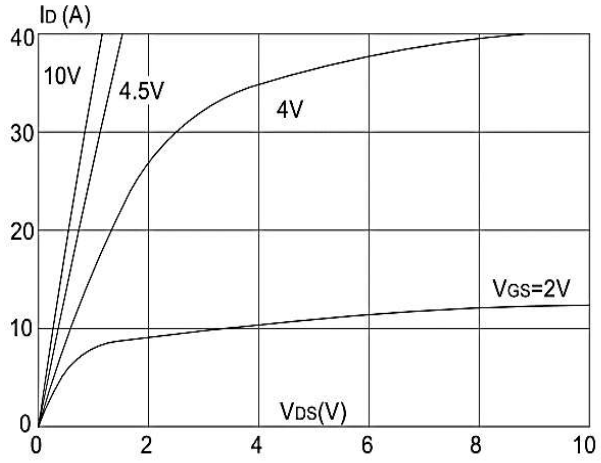


Figure1: Output Characteristics

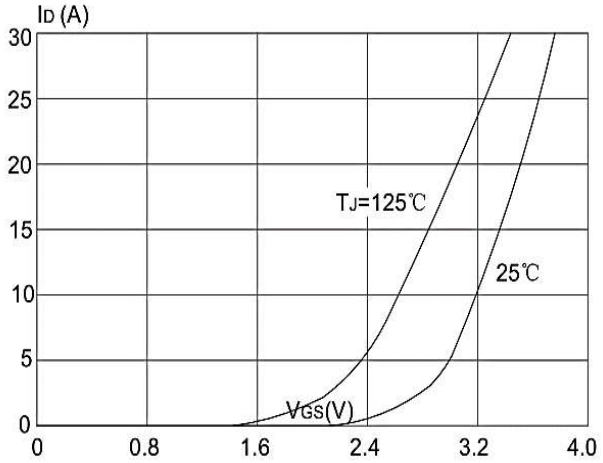


Figure 2: Typical Transfer Characteristics

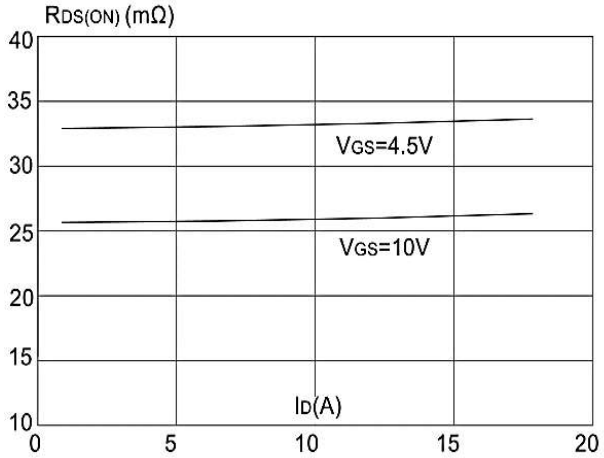


Figure 3:On-resistance vs. Drain Current

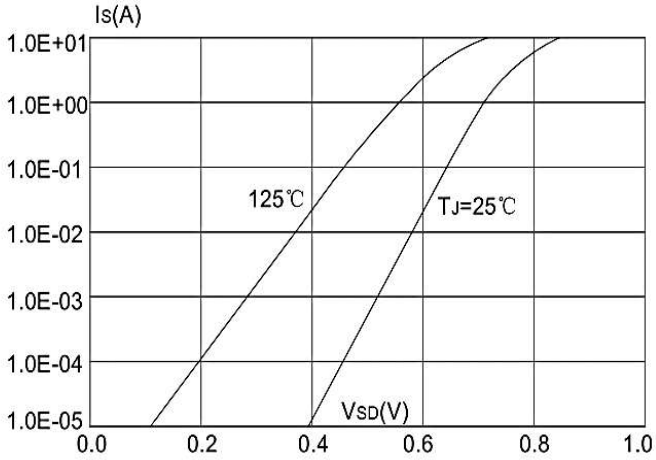


Figure 4: Body Diode Characteristics

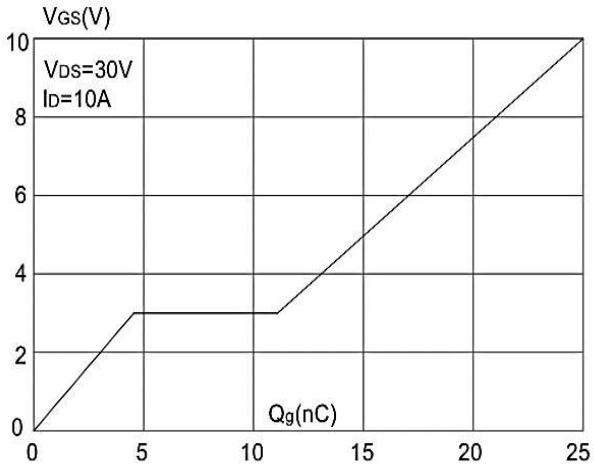


Figure 5: Gate Charge Characteristics

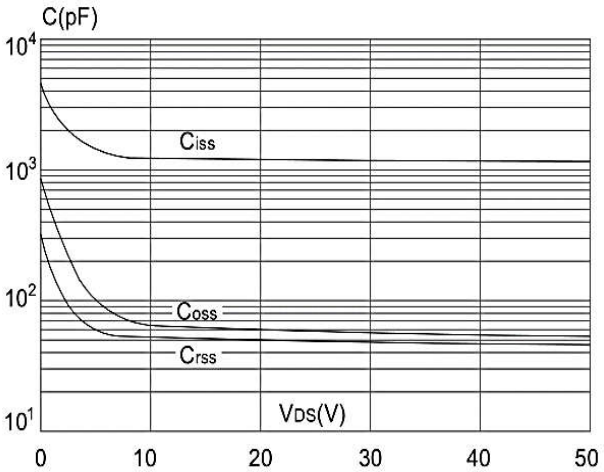


Figure 6: Capacitance Characteristics

Ratings and Characteristic Curves

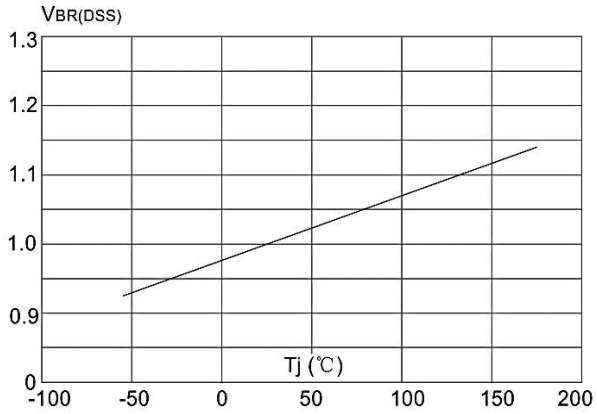


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

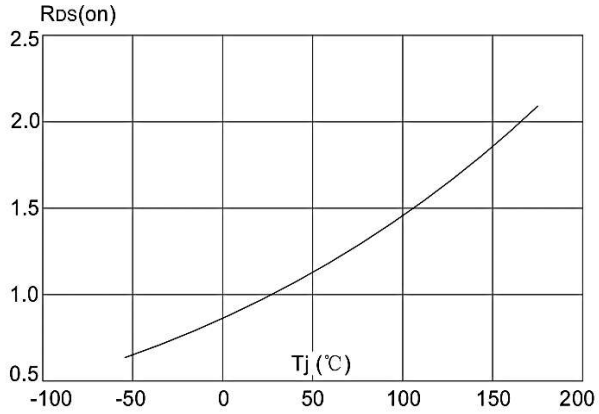


Figure 8: Normalized on Resistance vs Junction Temperature

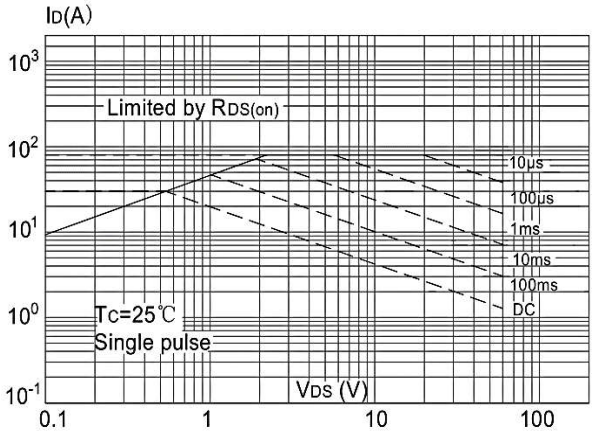


Figure 9: Maximum Safe Operating Area vs. Case Temperature

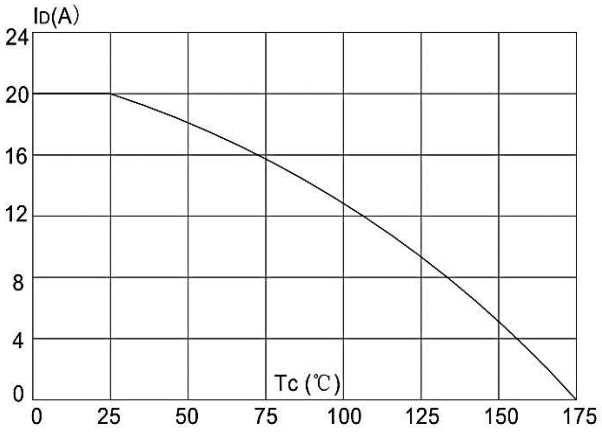


Figure 10: Maximum Continuous Drain Current

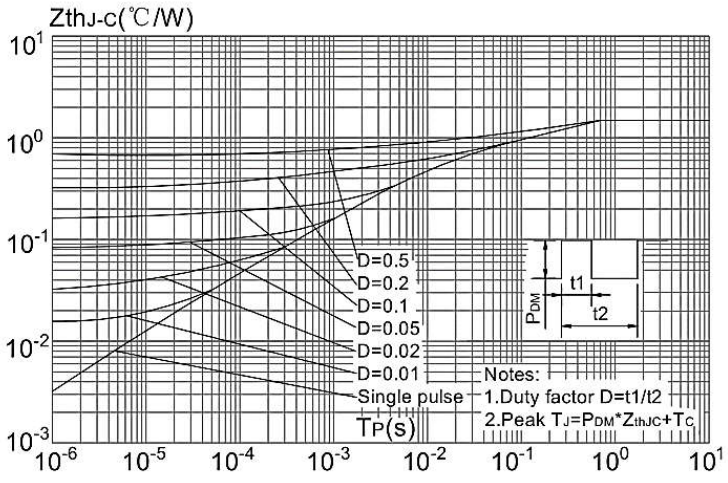


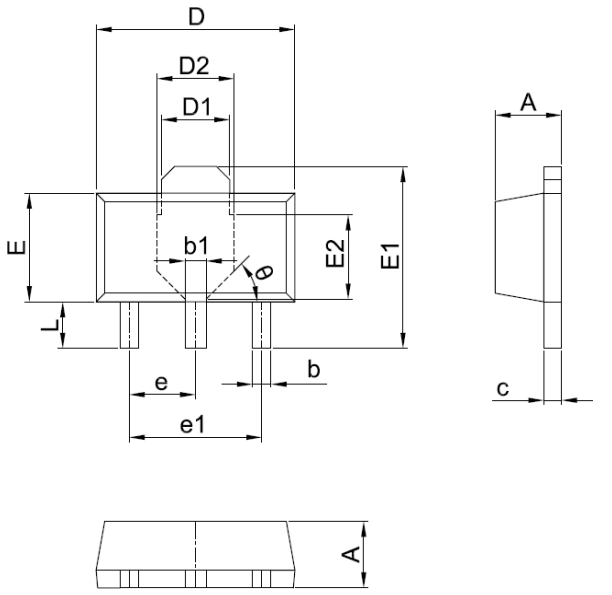
Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case

Ordering information

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

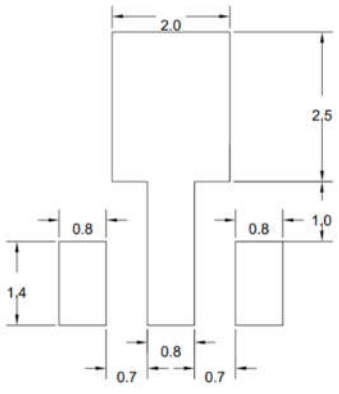
Package Dimensions

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

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