

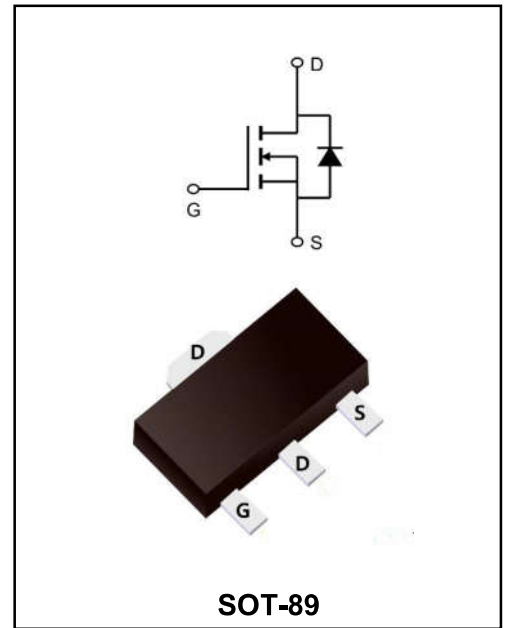
60V N-Channel Enhancement Mode Field Effect Transistor

MAIN CHARACTERISTICS

I_D	30A
V_{DS}	60V
$R_{DS(on)-typ}(@V_{GS}=10V)$	$<30m\Omega$ (Typ:21mΩ)
$R_{DS(on)-typ}(@V_{GS}=4.5V)$	$<40m\Omega$ (Typ:28mΩ)

FEATURES

- ◆Lead free product is acquired
- ◆High density cell design for ultra low RDS(on)
- ◆Good stability and uniformity with high EAS
- ◆Power Management
- ◆Excellent package for good heat dissipation
- ◆Power switching application
- ◆Hard switching and high frequency circuits
- ◆Uninterruptible power supply



SOT-89

Marking Code

YFW30N06SI	YFW30N06
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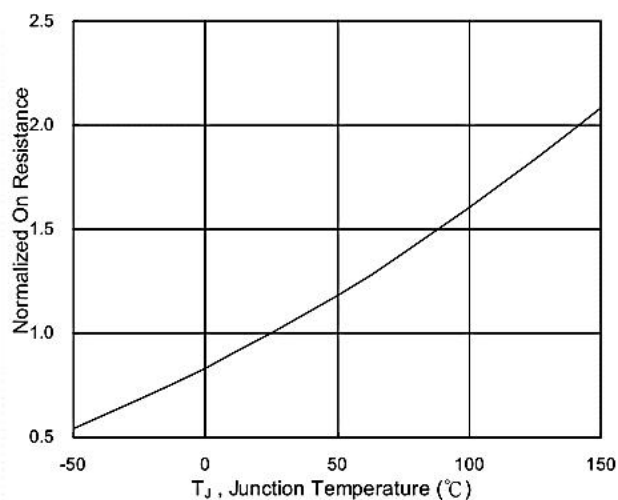
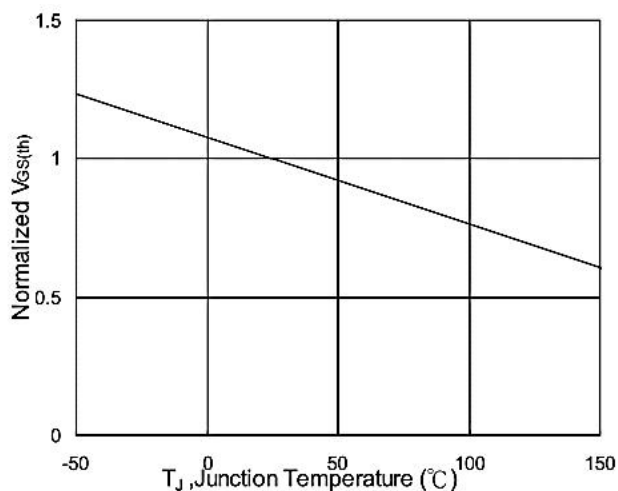
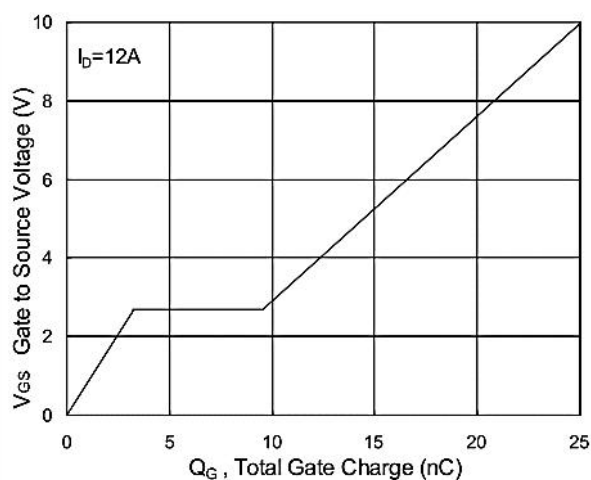
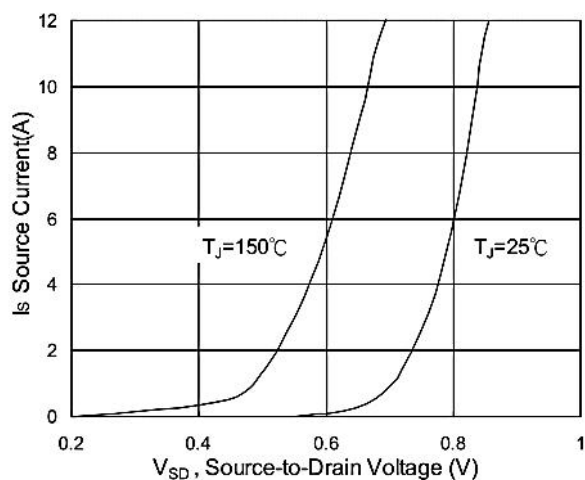
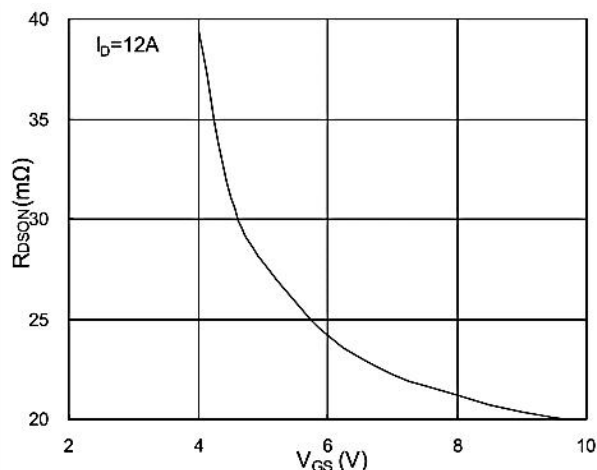
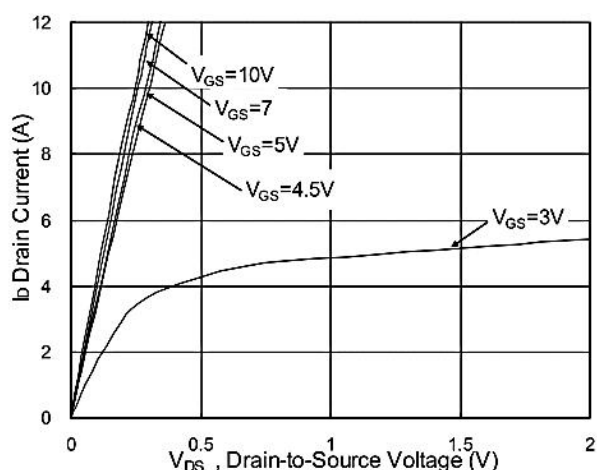
Absolute Maximum Ratings (Ta=25°C unless otherwise noted)

Parameter		Symbols	Value	Units
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current	TA=25°C	I_D	30	A
	TA=100°C		18	A
Pulsed Drain Current (Note 1)		I_{DM}	114	A
Single Pulse Avalanche Energy (Note 2)		E_{AS}	25.5	mJ
Power Dissipation		P_D	34.7	W
Junction Temperature		T_J	-55-+150	°C
Storage Temperature		T_{STG}	-55-+150	°C
Thermal Resistance From Junction to Ambient (note 3)		$R_{\theta JA}$	3.6	°C/W

Electrical Characteristics(Ta=25℃ unless otherwise noted)

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	BV_{DSS}	60			V
Drain-Source Leakage Current	$V_{DS}=48V, V_{GS}=0V, T_J=25^\circ C$	I_{DSS}			1	uA
	$V_{DS}=48V, V_{GS}=0V, T_J=55^\circ C$				5	
Gate-body Leakage	$V_{DS}=\pm 20V, V_{GS}=0V$	I_{GSS}			± 100	nA
Drain-Source On-Resistance (note 4)	$V_{GS}=10V, I_D=15A$	$R_{DS(ON)}$		21	30	mΩ
	$V_{GS}=4.5V, I_D=10A$			28	40	
Gate-Threshold voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	$V_{GS(th)}$	1.2	1.6	2.5	V
Diode forward voltage	$I_S=1A, V_{GS}=0V$	V_{SD}			1.2	V
Forward Transconductance	$V_{DS}=5V, I_D=15A$	g_{fs}		17		S
Gate Resistance	$V_{DS}=0V, V_{GS}=0V, f=1MHz$	R_g		3.2		Ω
Input capacitance	$V_{DS}=15V, V_{GS}=0V, f=1MHz$	C_{iss}		1378		pF
Output capacitance		C_{oss}		86		
Reverse Transfer capacitance		C_{rss}		64		
Total Gate Charge	$V_{GS}=4.5V$ $V_{DS}=48V$ $I_D=12A$	Q_g		12.6		nC
Gate Source Charge		Q_{gs}		3.2		
Gate Drain(Miller) Charge		Q_{gd}		6.3		
Turn-on Time	$V_{GS}=10V$ $I_D=10A$ $V_{DD}=30V$ $R_{GEN}=3.3\Omega$	$t_{d(on)}$		8		ns
Rise time		T_r		14.2		
Turn-off Time		$t_{d(OFF)}$		24.4		
Fall time		t_f		4.6		
Continuous Source Current	$V_{GS}=V_{DS}=0V, \text{Force Current}$	I_S			23	A
Pulsed Source Current		I_{SM}			46	A

Typical Performance Characteristics



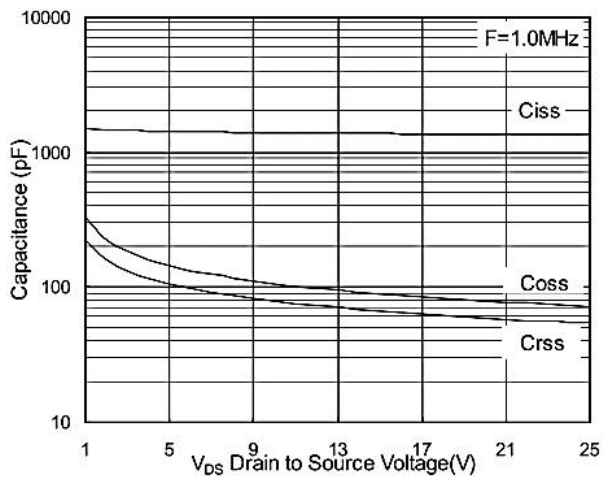


Fig.7 Capacitance

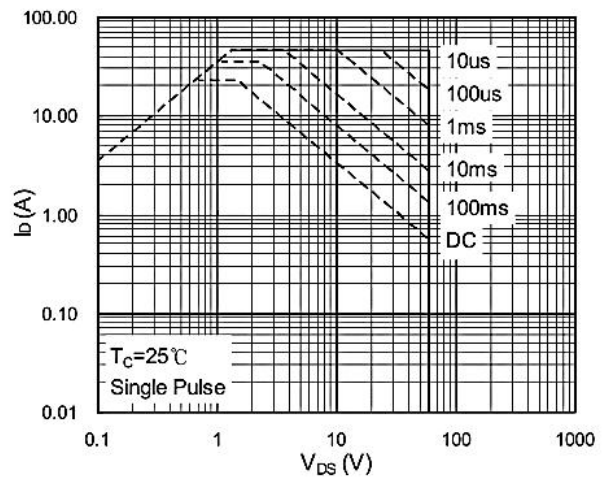


Fig.8 Safe Operating Area

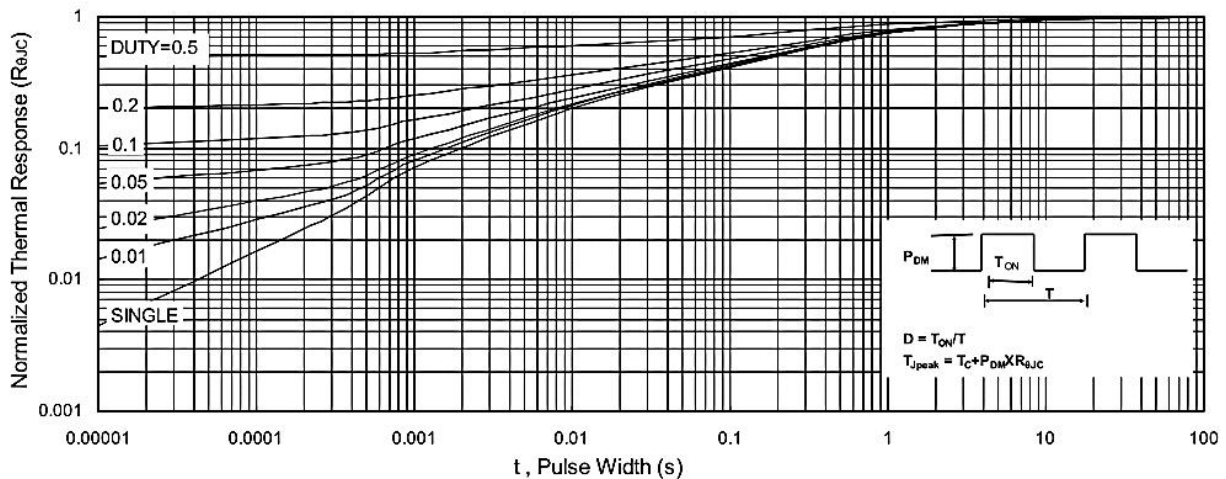


Fig.9 Normalized Maximum Transient Thermal Impedance

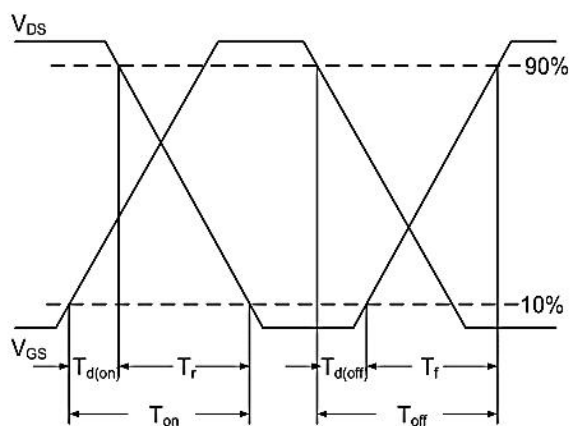


Fig.10 Switching Time Waveform

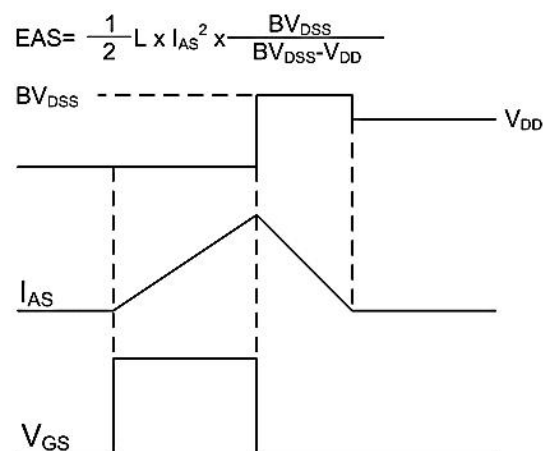


Fig.11 Unclamped Inductive Waveform

Ordering information

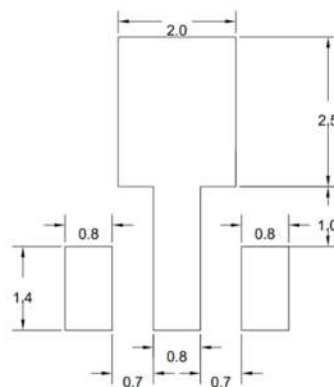
Package	Packing Description	Base Quantity	Packing Quantity
SOT-89	Tape/Reel, 7" reel	1000pcs/Reel	6000PCS/Box 30000PCS/Carton

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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