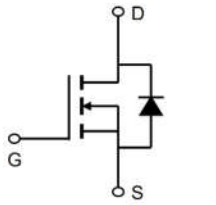
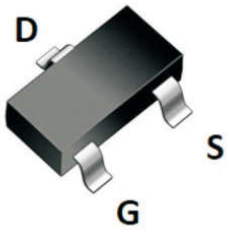
100V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	2A
V_{DSS}	100V
R_{DSON}-typ(@V_{GS}=10V)	< 320mΩ(Type:220 mΩ)





SOT-23

APPLICATION

- ♦LED backlighting
- ♦Industrial power supplies
- ♦Load Switch
- ♦Hand-Held Instruments
- ♦DC/DC Converters
- ♦Molded Plastic: UL Flammability Classification Rating 94V-0

Marking Code	
YFW2N10A	2N10

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 T_C=25℃	I_D	2	A
Pulsed Drain Current (Note 1)	I_{DM}	7.2	A
Power Dissipation T_C=25℃	P_D	1.56	W
Power Dissipation T_C=70℃	P_D	1.2	W
Thermal Resistance, Junction to Case	$R_{\theta JA}$	80	°C/W
Operation Junction Temperature and Storage Temperature	T_J ,T_{STG}	-55 to +150	°C

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	$V(BR)_{DSS}$	100	-	-	V
Drain-Source Leakage Current		V_{DS}=80V , V_{GS}=0V	I_{DSS}	-	-	1	μA
Gate-Source Leakage Current	Forward	V_{GS}=20V,V_{DS}=0V	I_{GSS}	-	-	100	μA
	Reverse	V_{GS}=-20V,V_{DS}=0V		-	-	-100	
Gate -Threshold Voltage		V_{DS}=V_{GS}, I_D=250uA	$V_{GS(th)}$	0.8	1.2	1.6	V
Static Drain-Source On-Resistance		V_{GS}=10V, I_D=1A	$R_{DS(ON)}$	-	220	320	mΩ
		V_{GS}=4.5V, I_D=1A		-	330	450	
Input Capacitance		V_{DS}=50V V_{GS}=0V f=1.0MHz	C_{iss}	-	362	-	pF
Output Capacitance			C_{oss}	-	10.5	-	
Reverse Transfer Capacitance			C_{rss}	-	6.8	-	
Total Gate Charge		V_{DS}=50V V_{GS}=10V I_D=1A	Q_g	-	3.5	-	nC
Gate-Source Charge			Q_{gs}	-	0.5	-	
Gate-Drain Charge			Q_{gd}	-	0.7	-	
Turn-on delay time		V_{DS}=50V,V_{GS}=10V, I_D=1A,R_G=3.3Ω	$t_{d(on)}$	-	4.5	-	ns
Turn-on Rise Time			T_r	-	3.4	-	
Turn-Off Delay Time			$t_{d(OFF)}$	-	16	-	
Turn-Off Fall Time			t_f	-	3	-	
Maximum Body-Diode Continuous Current		TA=25℃	I_S	-	-	1.2	A
Drain-Source Diode Forward Voltage (Note 2)		I_{SD}=1A,V_{GS}=0V,T_j=25℃	V_{SD}	-	0.8	1.2	V

Notes:

1. Pulse width limitwd by maximum allowable junction temperature
2. Pulse test ;Pulse width≦300us,duty cycle≦2%

Typical Characteristics

Fig.1 Output Characteristics

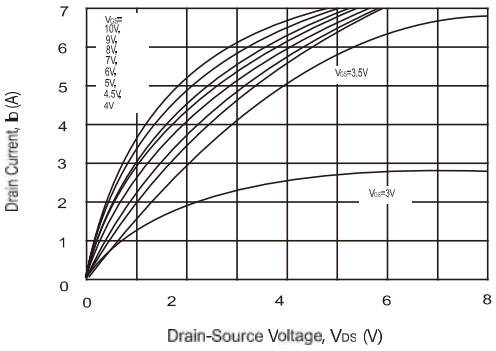


Fig.2 VGS(TH) Voltage Vs. Temperature

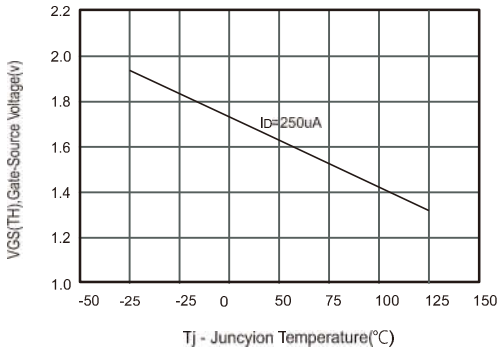


Fig.3 Typical Transfer Characteristics

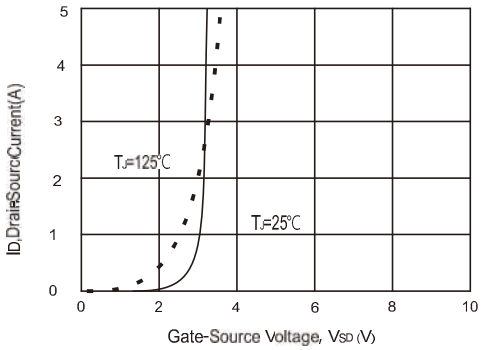


Fig.4 On-Resistance vs.Drain Current and Gat

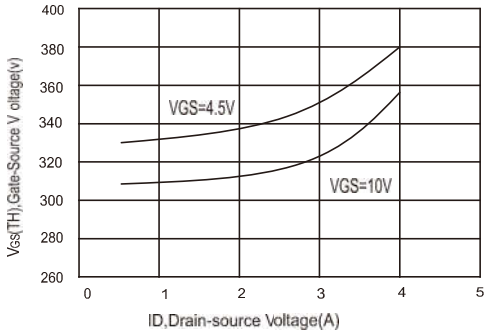


Fig.5 Source-Drain Diode Forward Voltage

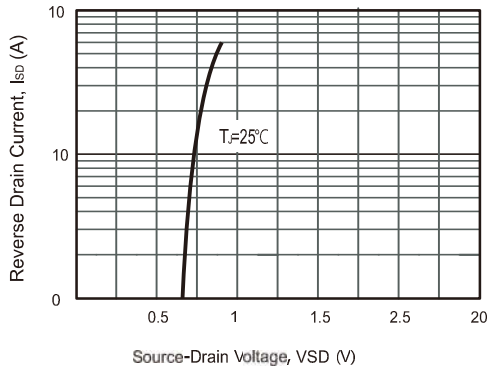


Fig.6 Safe Operating Area

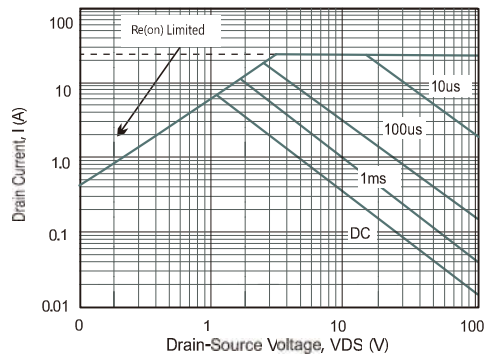


Fig.7 Capacitance vs.Drain-Source Voltage

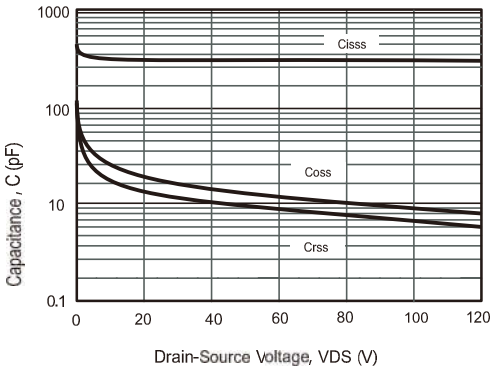
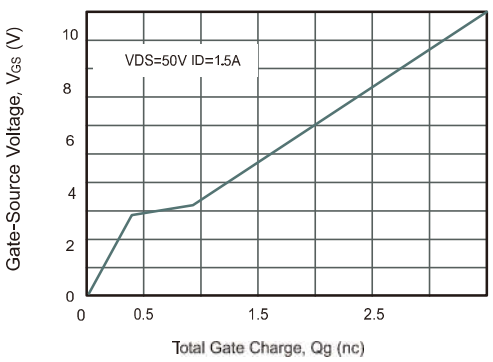
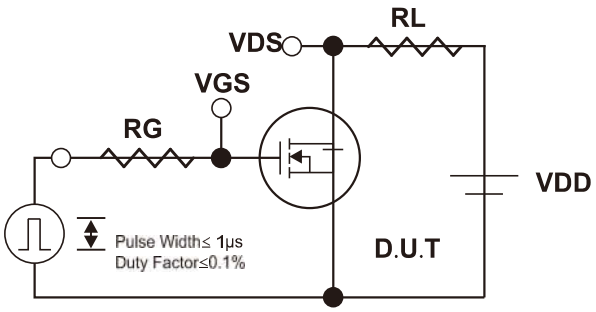


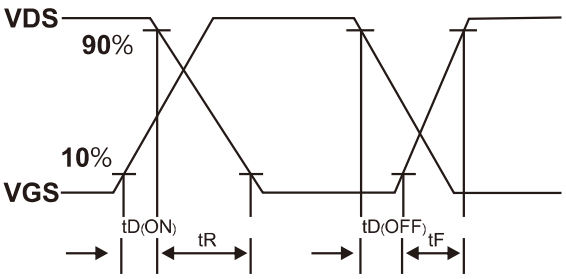
Fig.8 Gate Charge Vs.Gate-Source Voltage



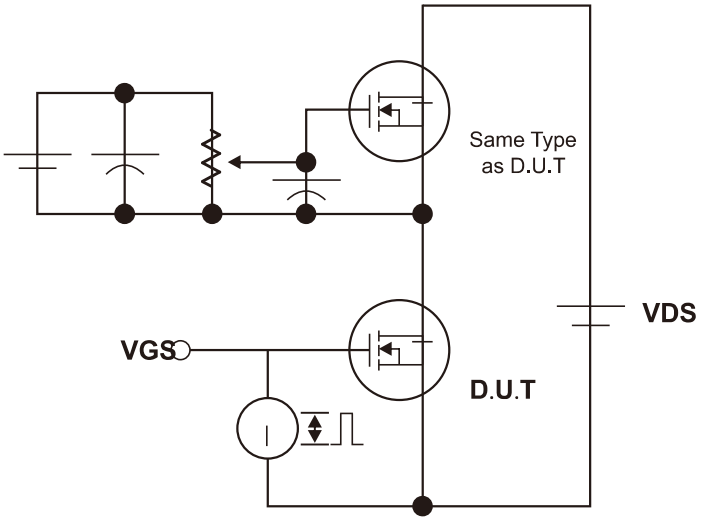
Test Circuits and waveforms



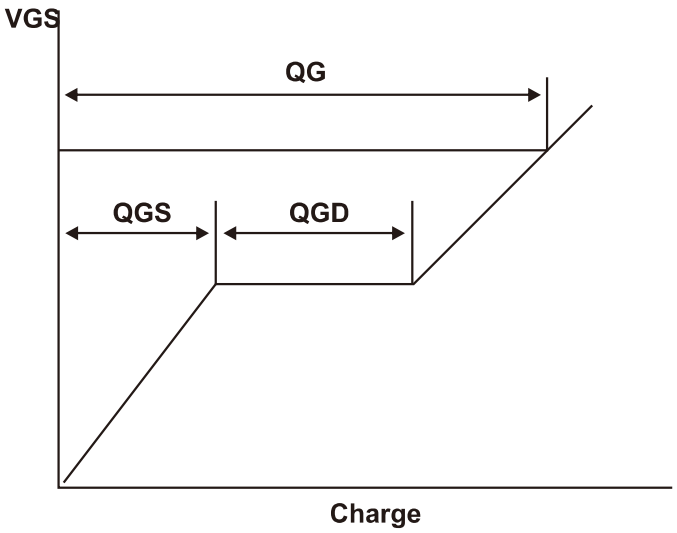
Switching Test Circuit



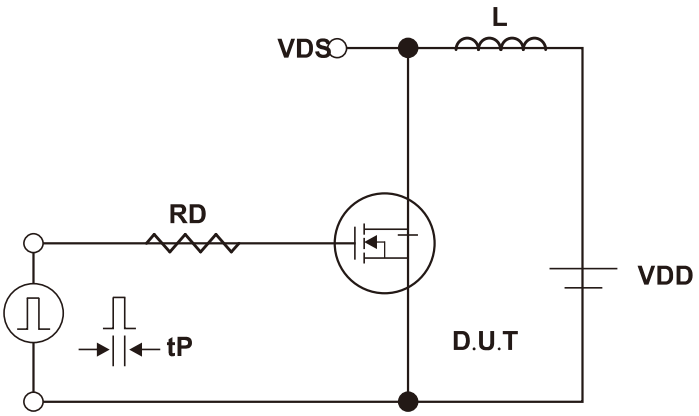
Switching Waveforms



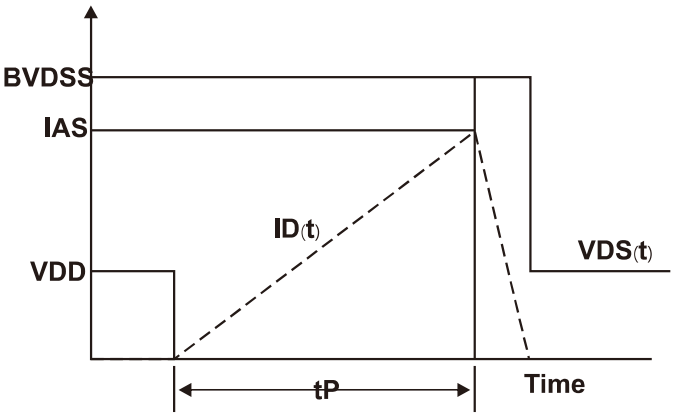
Gate Charge Test Circuit



Gate Charge Waveform



Unclamped Inductive Switching Test Circuit



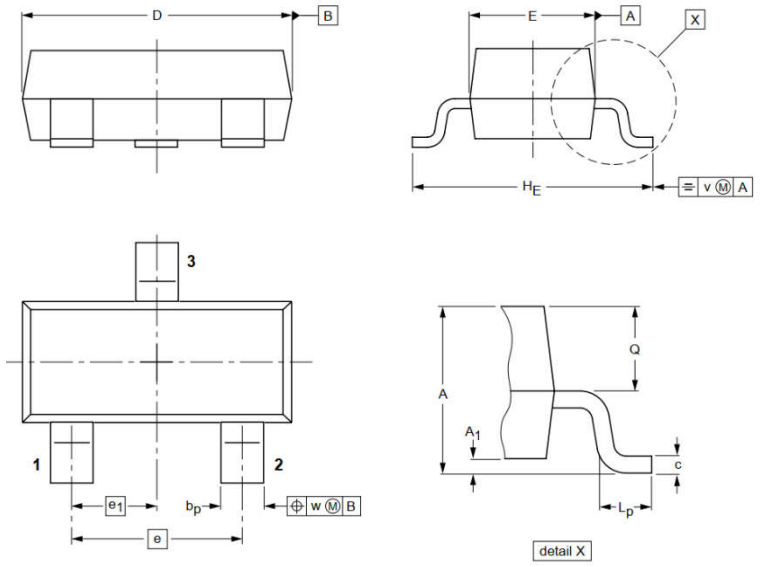
Unclamped Inductive Switching Waveforms

Ordering information

Package	Packing Description	Base Quantity	Packing Quantity
SOT-23	Tape/Reel,7"reel	3000pcs/Reel	24000PCS/Box 120000PCS/Carton

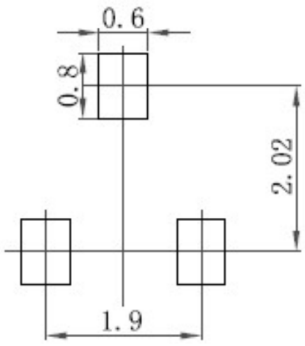
Package Dimensions

SOT-23



Dim.	Millimeter (mm)		mil	
	Min.	Max.	Min.	Max.
A	0.9	1.15	35	45
A1	0.1		3.9	
bp	0.38	0.48	15	19
C	0.09	0.15	3.54	5.9
D	2.8	3.0	110	118
E	1.2	1.4	47	55
E	1.9		75	
E1	0.95		37	
HE	2.1	2.55	83	100
Lp	0.15	0.45	5.9	18
Q	0.45	0.55	18	22
v	0.2		7.9	
W	0.1		4	

The recommended mounting pad size



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