

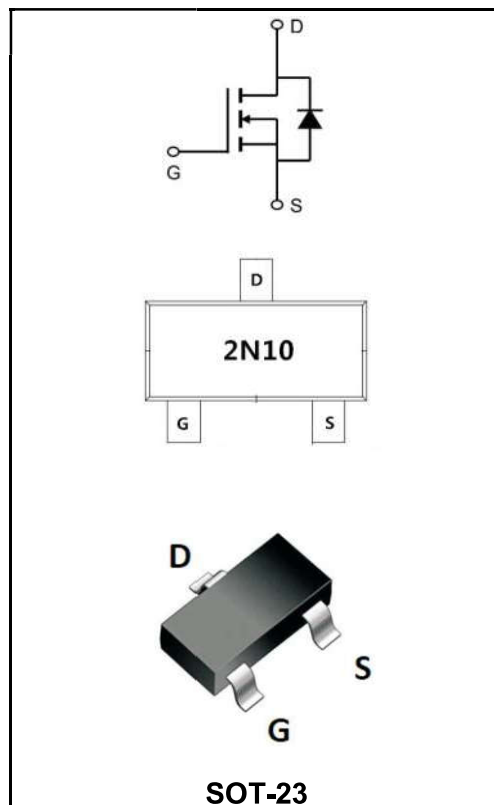
100V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

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

APPLICATION

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



PRODUCT SPECIFICATION CLASSIFICATION

Part Number	Package	Marking	Pack
YFW2N10A	SOT-23	2N10	3000PCS/Tape

Maximum Ratings at $T_c=25^{\circ}\text{C}$ unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	100	V
Gate - Source Voltage	V_{GS}	± 20	V
Continuous Drain Current $T_c=25^{\circ}\text{C}$	I_D	2	A
Pulsed Drain Current (Note 1)	I_{DM}	7.2	A
Power Dissipation $T_c=25^{\circ}\text{C}$	P_D	1.56	W
Power Dissipation $T_c=70^{\circ}\text{C}$	P_D	1.2	W
Thermal Resistance, Junction to Case	$R_{\theta JA}$	80	$^{\circ}\text{C/W}$
Operation Junction Temperature and Storage Temperature	T_J, T_{STG}	-55 to +150	$^{\circ}\text{C}$

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	$V(BR)_{DSS}$	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	$V_{DS}=V_{GS}, I_D=250\mu A$	$V_{GS(th)}$	0.8	1.2	1.6	V
Static Drain-Source On-Resistance	$V_{GS}=10V, I_D=1A$	$R_{DS(ON)}$	-	220	320	m Ω
	$V_{GS}=4.5V, I_D=1A$		-	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	$V_{DS}=50V, V_{GS}=10V,$ $I_D=1A, R_G=3.3\Omega$	$t_{d(on)}$	-	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	$T_A=25^\circ C$	I_S	-	-	1.2	A
Drain-Source Diode Forward Voltage (Note 2)	$I_{SD}=1A, V_{GS}=0V, T_J=25^\circ C$	V_{SD}	-	0.8	1.2	V

Notes:

1. Pulse width limitwd by maximum allowable junction temperature
2. Pulse test ;Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$

Typical Characteristics

Fig.1 Output Characteristics

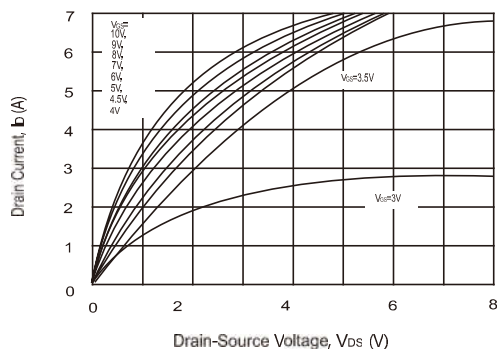


Fig.2 VGS(TH) Voltage Vs. Temperature

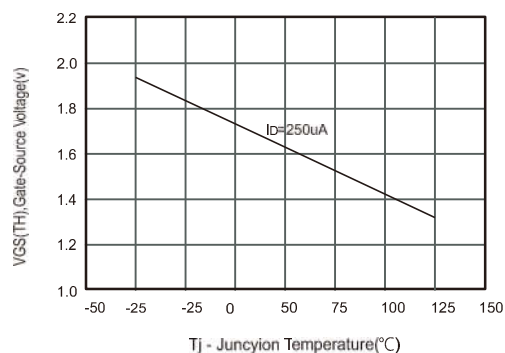


Fig.3 Typical Transfer Characteristics

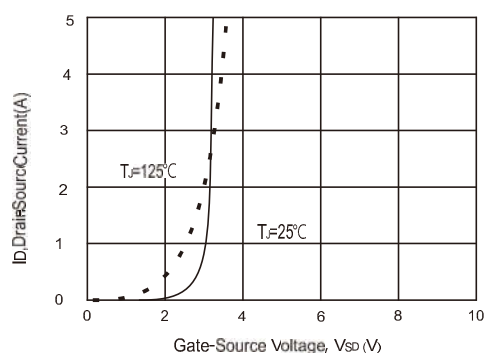


Fig.4 On-Resistance vs. Drain Current and Gate

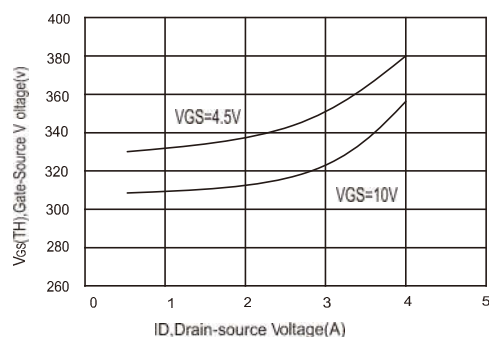


Fig.5 Source-Drain Diode Forward Voltage

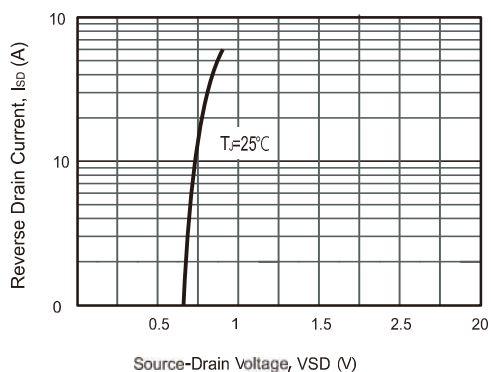


Fig.6 Safe Operating Area

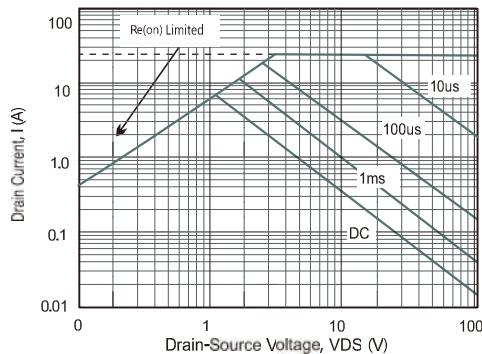


Fig.7 Capacitance vs. Drain-Source Voltage

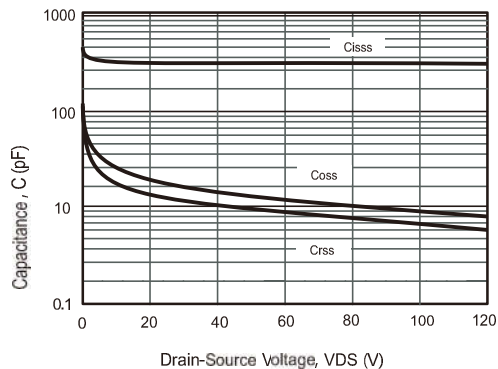
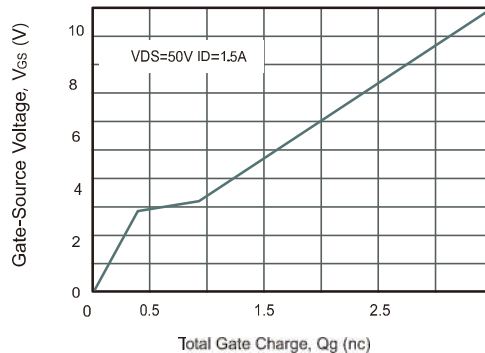
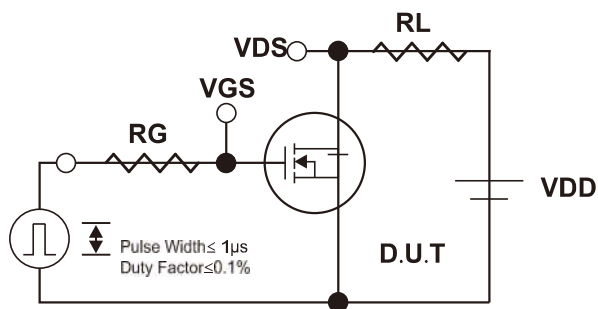


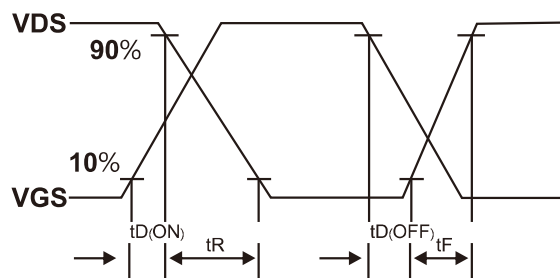
Fig.8 Gate Charge Vs. Gate-Source Voltage



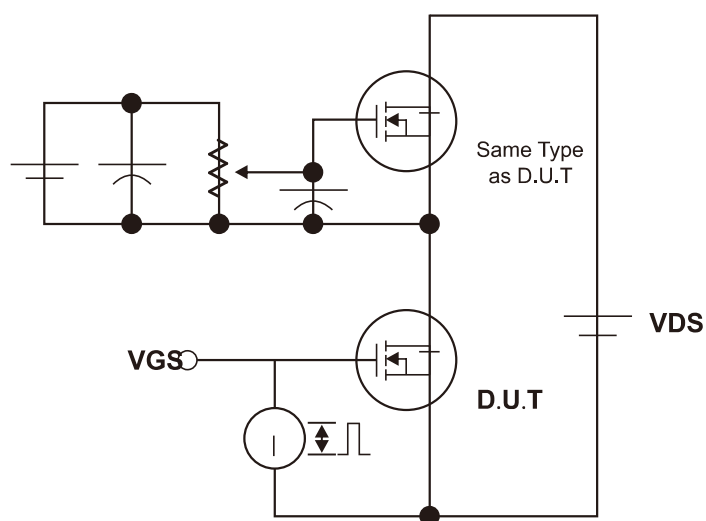
Test Circuits and waveforms



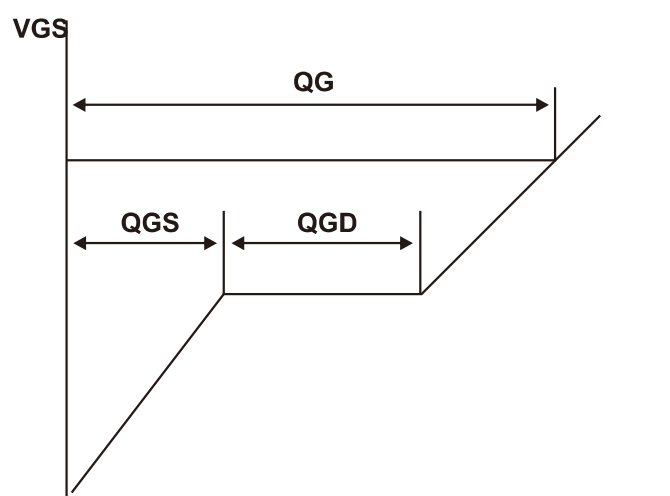
Switching Test Circuit



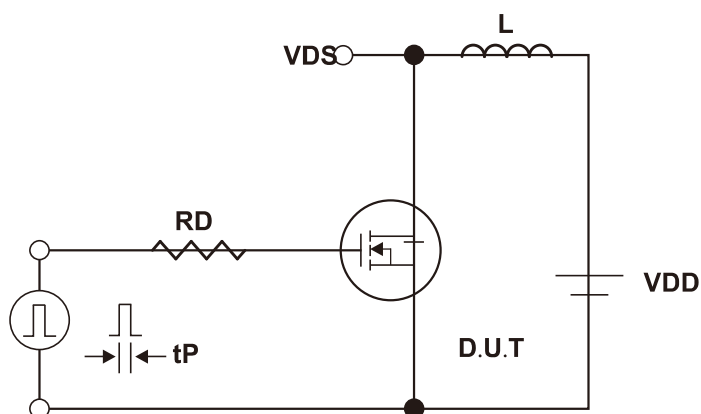
Switching Waveforms



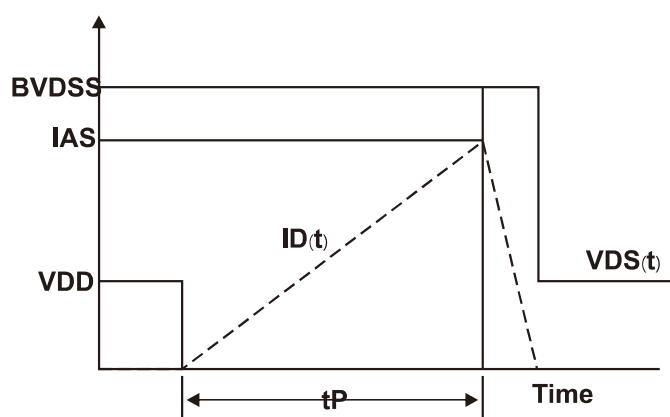
Gate Charge Test Circuit



Charge
Gate Charge Waveform

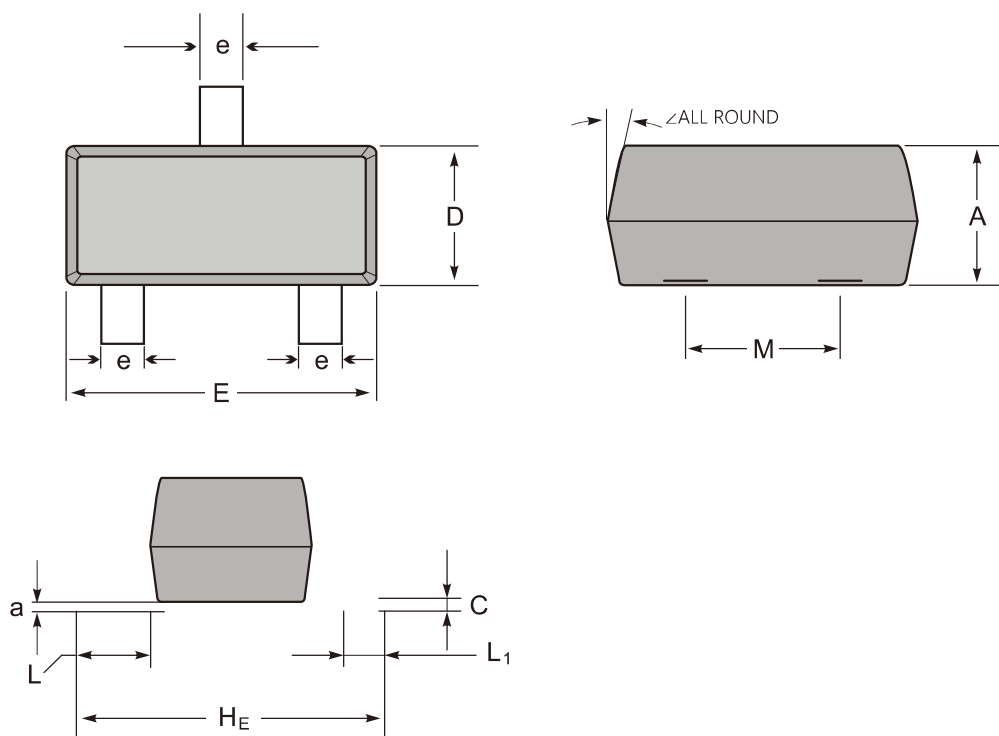


Unclamped Inductive Switching Test Circuit



Unclamped Inductive Switching Waveforms

SOT-23



SOT-23 mechanical data

UNIT		A	C	D	E	HE	e	M	L	L1	a	$\angle$
mm	max	1.1	0.20	1.4	3.0	2.6	0.6	1.95	0.55 (ref)	0.36 (ref)	0.15	12°
	min	0.9	0.08	1.2	2.8	2.2	0.35	1.7			0.0	
mil	max	43	7.9	55	118	102	24	77	22 (ref)	14 (ref)	6	
	min	35	3.1	47	110	87	13	67			0.0	

The recommended mounting pad size

