

General Description

The MY6N80P is silicon N-channel Enhanced VDMOSFETs, obtained by the self-aligned planar Technology which reduce the conduction loss, improve switching performance and enhance the avalanche energy.

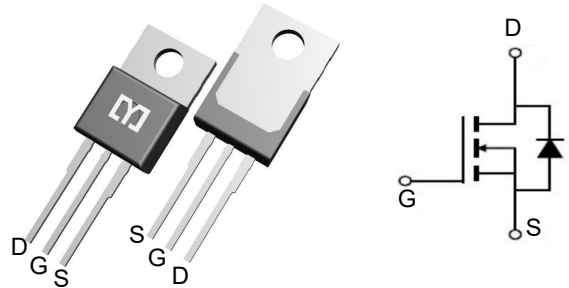


Features

V_{DSS}	800	V
I_D	6	A
$P_D(T_C=25\text{ }^\circ\text{C})$	47	W
$R_{DS(ON)}(\text{at } V_{GS} = 10\text{V})$	< 2.5	Ω

Application

- High efficiency switch mode power supplies
- Power factor correction
- Electronic lamp ballast



Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
MY6N80P	TO-220	MY6N80P	1000

Absolute Maximum Ratings ($T_C=25\text{ }^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{DSS}	Drain-Source Voltage	800	V
I_D	Drain Current	$T_j=25\text{ }^\circ\text{C}$	6
		$T_j=100\text{ }^\circ\text{C}$	3.8
$V_{GS(TH)}$	Gate Threshold Voltage	± 30	V
E_{AS}	Single Pulse Avalanche Energy (note1)	590	mJ
I_{AR}	Avalanche Current (note2)	5	A
P_D	Power Dissipation ($T_j=25\text{ }^\circ\text{C}$)	47	W
T_j	Junction Temperature(Max)	150	$^\circ\text{C}$
T_{stg}	Storage Temperature	-55~+150	$^\circ\text{C}$
TL	Maximum lead temperature for soldering purpose, 1/8" from case for 5 seconds	300	$^\circ\text{C}$

Thermal Characteristics

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JC}$	Thermal Resistance, Junction to Case	-	2.66	$^\circ\text{C}/\text{W}$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	-	62.5	$^\circ\text{C}/\text{W}$

Electrical Characteristics (T_c=25 °C, unless otherwise noted)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
Off Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	I _D =250μA, V _{GS} =0	800	-	-	V
ΔBV _{DSS} / ΔT _J	Breakdown Voltage Temperature Coefficient	I _D =250μA, Reference to 25 °C	-	0.9	-	V/°C
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =800V, V _{GS} =0V	-	-	10	μA
		V _{DS} =640V, T _j =125 °C	-	-	100	
I _{GSSF}	Gate-body leakage Current, Forward	V _{GS} =+30V, V _{DS} =0V	-	-	100	nA
I _{GSSR}	Gate-body leakage Current, Reverse	V _{GS} =-30V, V _{DS} =0V	-	-	-100	
On Characteristics						
V _{GS(TH)}	Gate Threshold Voltage	I _D =250μA, V _{DS} =V _{GS}	3	-	5	V
R _{DS(ON)}	Static Drain Source On-Resistance	I _D =3A, V _{GS} =10V	-	-	2.5	Ω
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =25V, V _{GS} =0, f=1.0MHz	-	1230	-	pF
C _{oss}	Output Capacitance		-	95	-	
C _{rss}	Reverse Transfer Capacitance		-	11	-	
Switching Characteristics						
T _{d(on)}	Turn-On Delay Time	V _{DD} =400V, I _D =6A R _G =25Ω (Note 3,4)	-	22	55	nS
T _r	Turn-On Rise Time		-	60	130	
T _{d(off)}	Turn-Off Delay Time		-	55	120	
T _f	Turn-Off Rise Time		-	40	90	
Q _g	Total Gate Charge	V _{DS} =640V, V _{GS} =10V, I _D =6A (Note 3,4)	-	31	-	nC
Q _{gs}	Gate-Source Charge		-	5.6	-	
Q _{gd}	Gate-Drain Charge		-	12	-	
Drain-Source Diode Characteristics and Maximum Ratings						
I _s	Max. Diode Forward Current	-	-	-	6	A
I _{SM}	Max. Pulsed Forward Current	-	-	-	24	
V _{SD}	Diode Forward Voltage	I _D =6A	-	-	1.4	V
T _{rr}	Reverse Recovery Time	I _S =6A, V _{GS} =0V diF/dt=100A/ μs (Note3)	610	-	-	nS
Q _{rr}	Reverse Recovery Charge		4.7	-	-	μC

Notes : 1, L=11.1mH, I_{AS}=6A, V_{DD}=50V, R_G=25Ω, Starting T_J =25°C
 2, Repetitive Rating : Pulse width limited by maximum junction temperature
 3, Pulse Test : Pulse Width ≤ 300μs, Duty Cycle ≤ 2%
 4, Essentially Independent of Operating Temperature

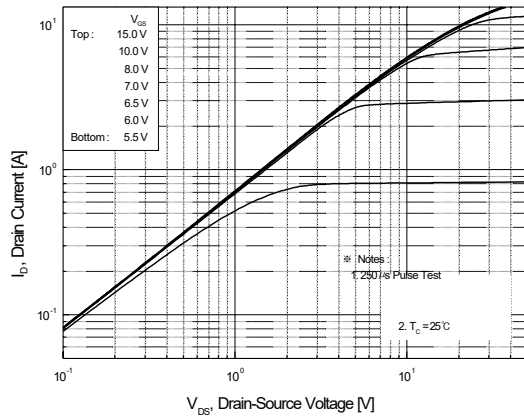


Figure 1. On-Region Characteristics

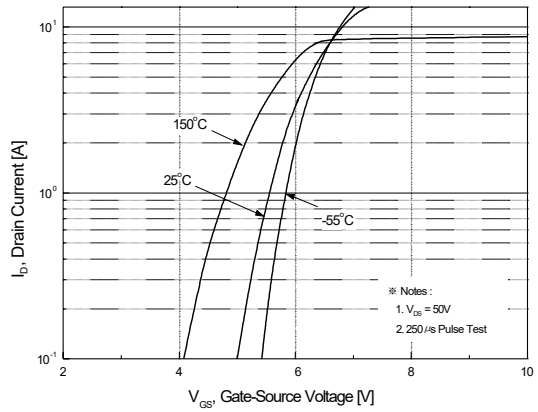


Figure 2. Transfer Characteristics

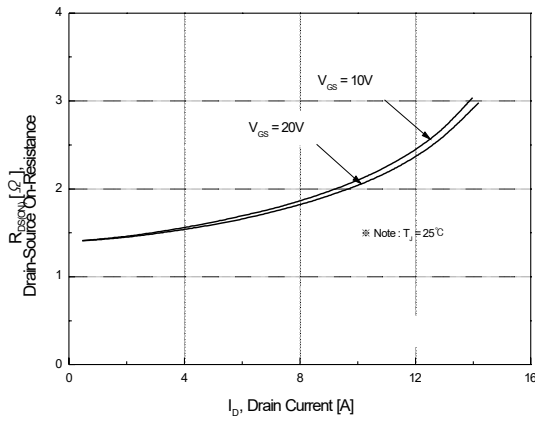


Figure 3. On-Resistance Variation vs Drain Current and Gate Voltage

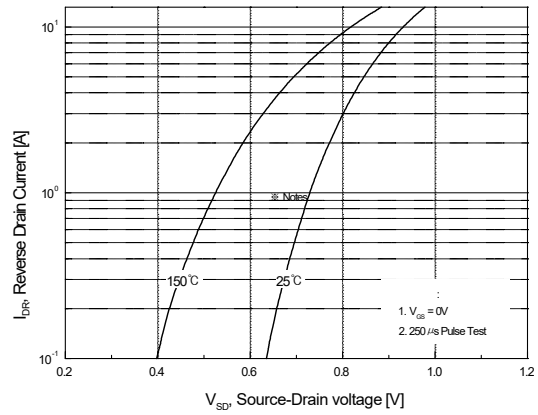


Figure 4. Body Diode Forward Voltage Variation with Source Current and Temperature

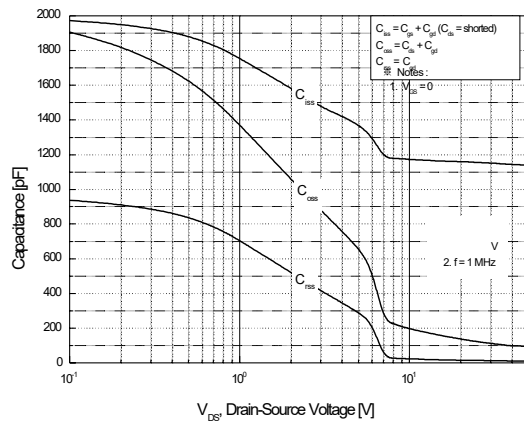


Figure 5. Capacitance Characteristics

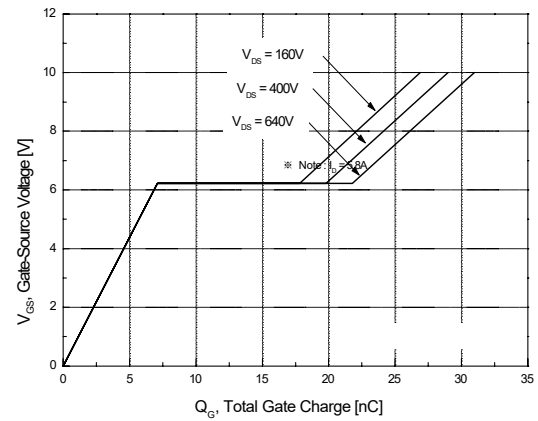


Figure 6. Gate Charge Characteristics

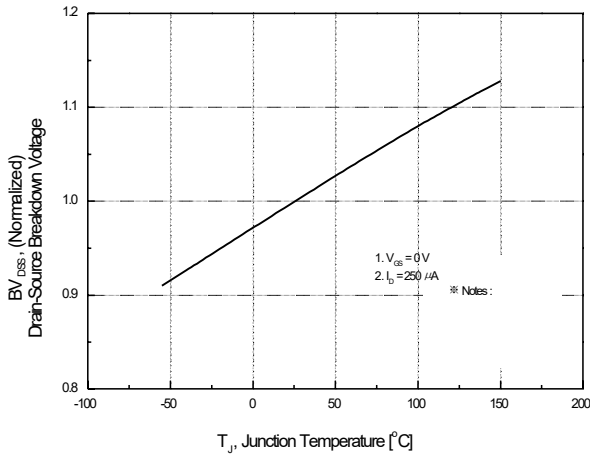


Figure 7. Breakdown Voltage Variation vs Temperature

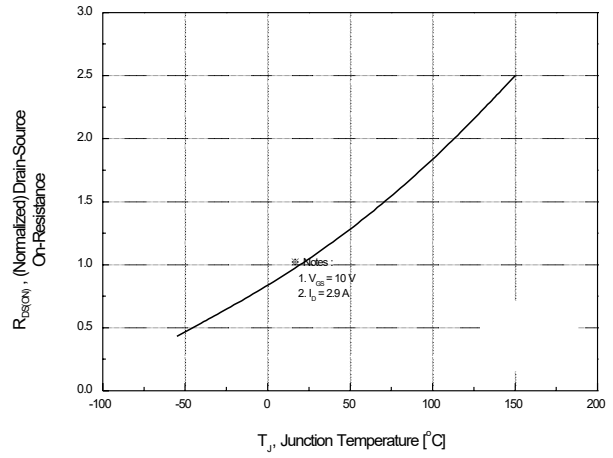


Figure 8. On-Resistance Variation vs Temperature

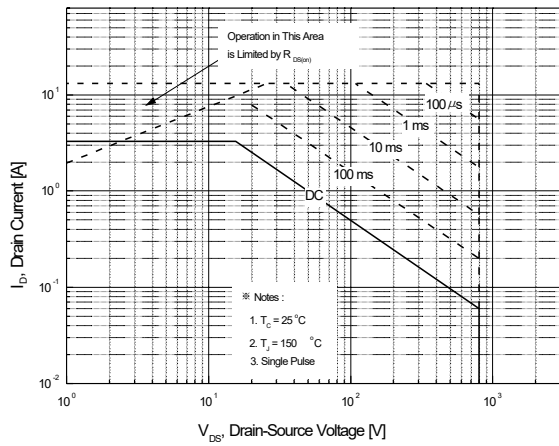


Figure 9. Maximum Safe Operating Area

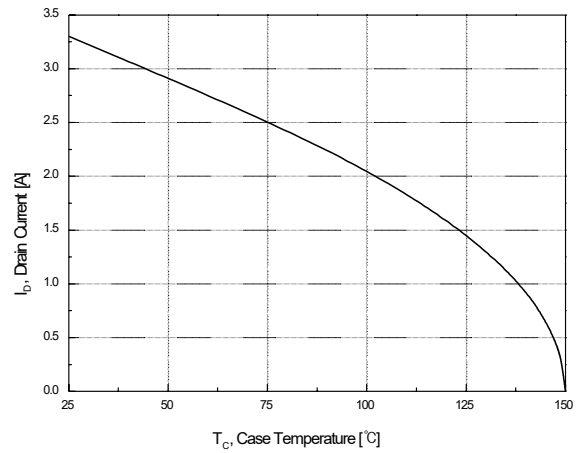


Figure 10. Maximum Drain Current vs Case Temperature

* Notes

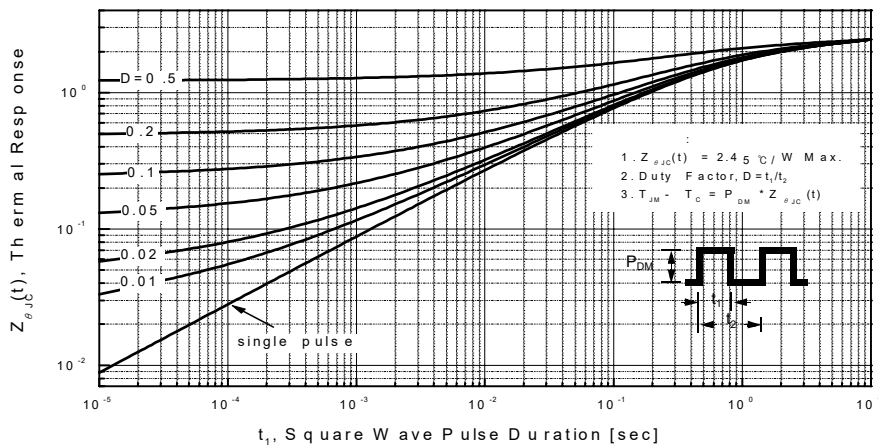
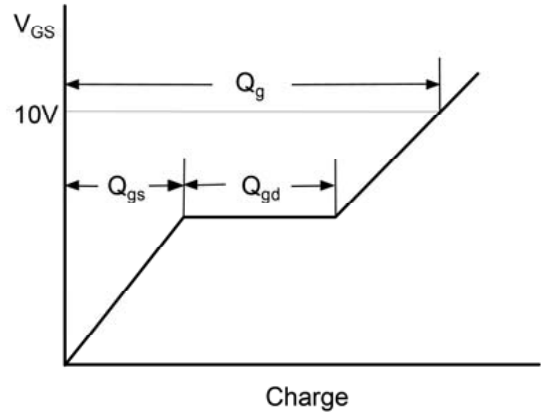
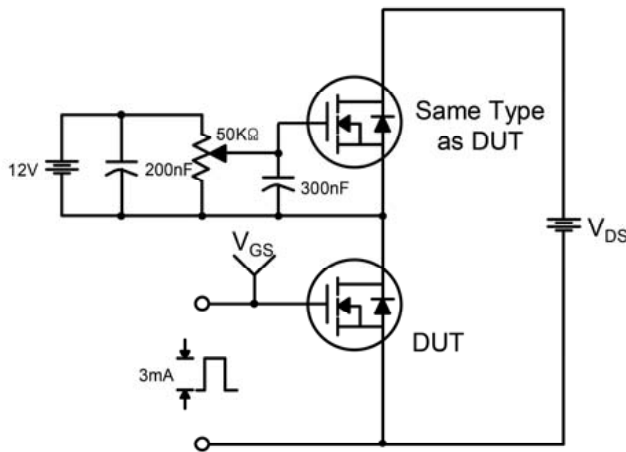
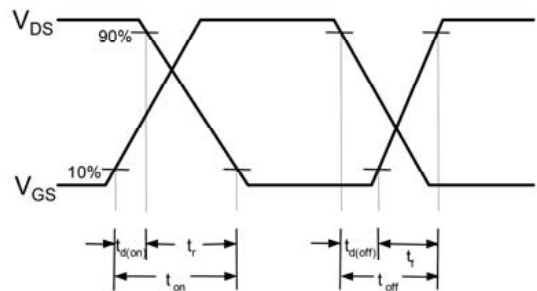
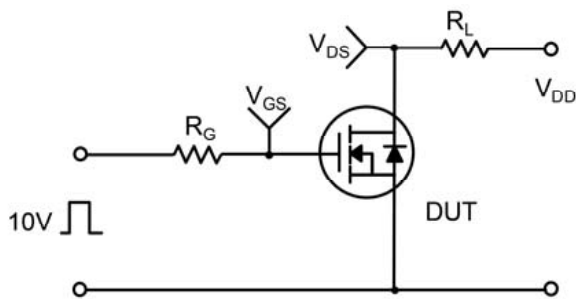


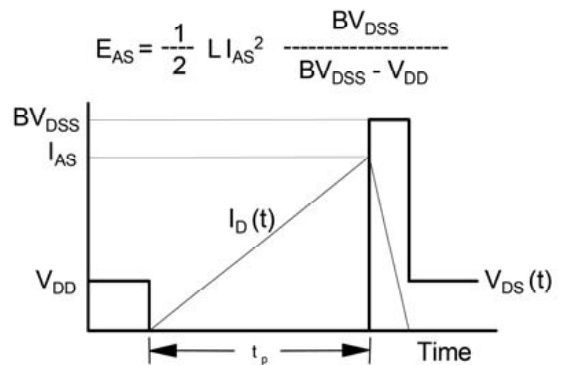
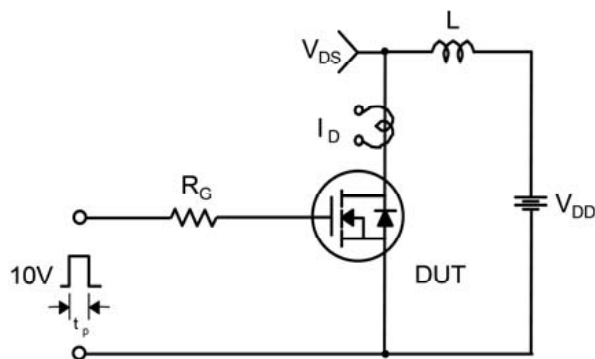
Figure 11. Transient Thermal Response Curve



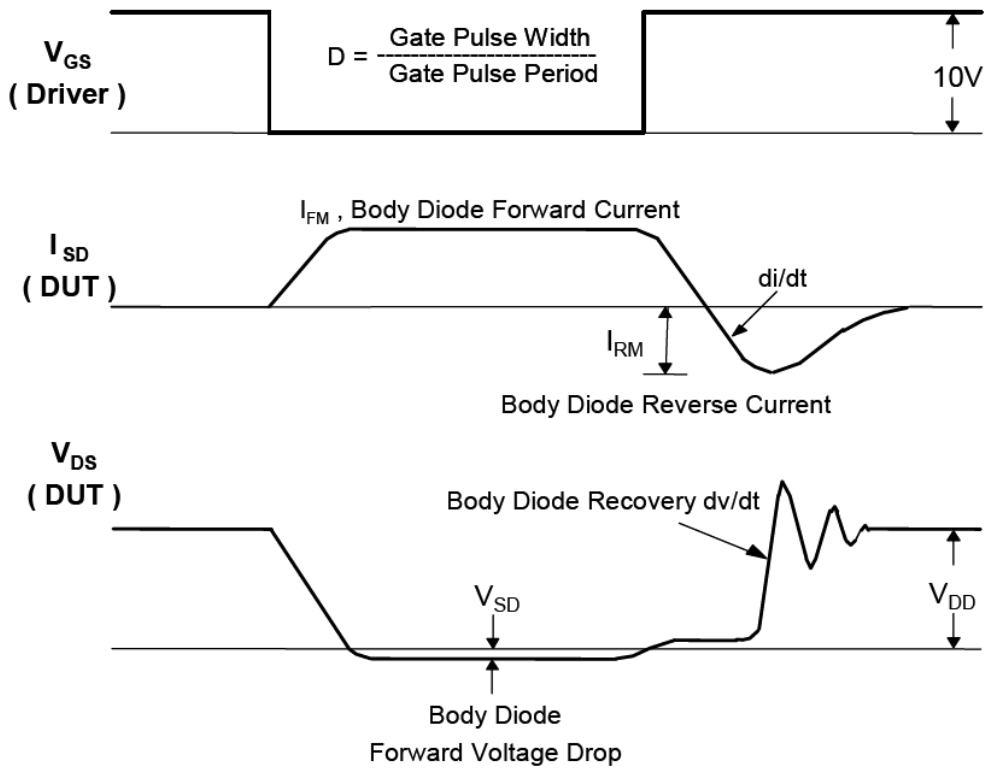
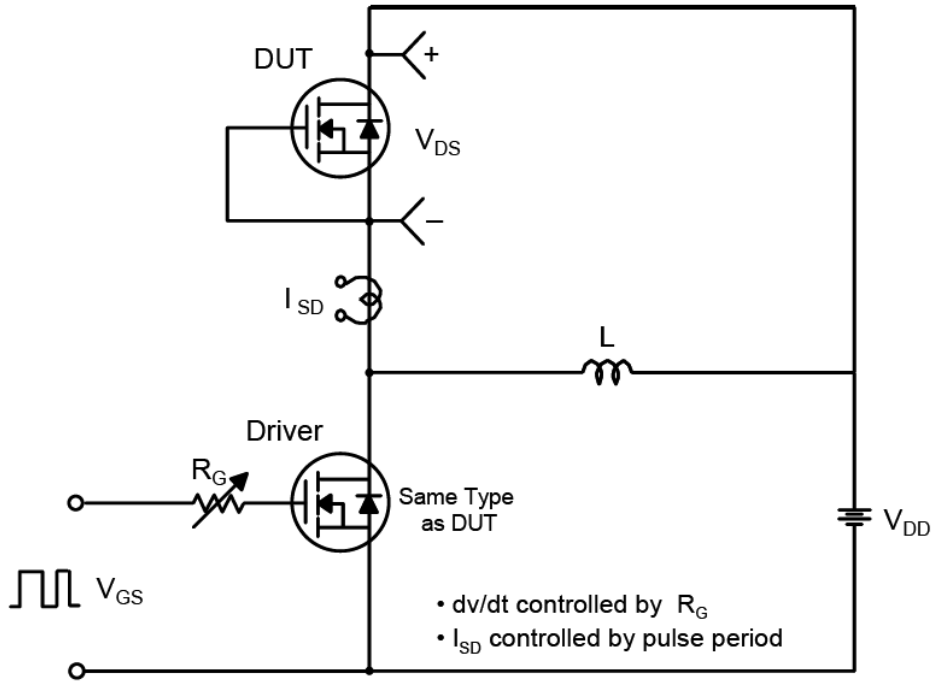
Resistive Switching Test Circuit & Waveforms



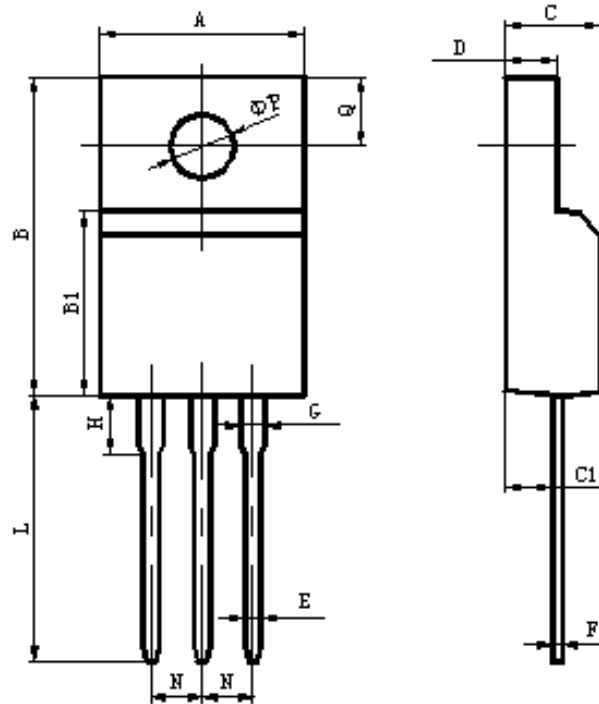
Unclamped Inductive Switching Test Circuit & Waveforms



Peak Diode Recovery dv/dt Test Circuit & Waveform



Package Mechanical Data-TO-220 Single



Items	Values(mm)	
	MIN	MAX
A	9.60	10.4
B	15.4	16.2
B1	8.90	9.50
C	4.30	4.90
C1	2.10	3.00
D	2.40	3.00
E	0.60	1.00
F	0.30	0.60
G	1.12	1.42
H	3.40	3.80
	2.40	2.90
L*	12.0	14.0
N	2.34	2.74
Q	3.15	3.55
ϕ P	2.90	3.30