

General Description

The MY7N65F 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.

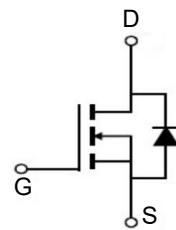
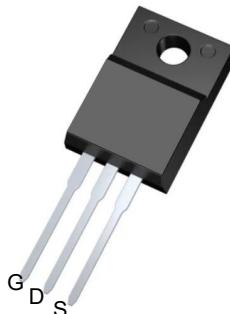


Features

V _{DSS}	650	V
I _D	7	A
P _D (T _C = 25 °C)	38	W
R _{DS(ON)} (at V _{GS} = 10V)	1.2	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)
MY7N65F	TO-220F	MY7N65F	1000

Absolute Maximum Ratings (T_c=25 °C unless otherwise noted)

Symbol	Parameters	Ratings	Unit
V _{DSS}	Drain-Source Voltage	650	V
V _{GS}	Gate-Source Voltage-Continuous	±30	V
I _D	Drain Current-Continuous (Note 2)	7	A
I _{DM}	Drain Current-Single Plused (Note 1)	28	A
P _D	Power Dissipation (Note 2)	38	W
T _j	Max.Operating junction temperature	150	°C/W

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

Symbol	Parameters	Min	Typ	Max	Units	Conditions
Static Characteristics						
B _{VDSS}	Drain-Source Breakdown VoltageCurrent (Note 1)	650	--	--	mA	I _D =250μA V _{GS} =0V , T _J =25°C
V _{GS(th)}	Gate Threshold Voltage	2.0	--	4.0	V	V _{DS} =V _{GS} , I _D =250μA
R _{DS(on)}	Drain-Source On-Resistance	--	1.2	1.4	Ω	V _{GS} =10V , I _D =3.5A
I _{GSS}	Gate-Body Leakage Current	--	--	±100	nA	V _{GS} =±30V , V _{DS} =0
I _{DSS}	Zero Gate Voltage Drain Current	--	--	1	μA	V _{DS} =650V , V _{GS} =0
g _{fs}	Forward Transconductance	2.3	--	--	S	V _{DS} =15V, I _D =3.5A
Switching Characteristics						
T _{d(on)}	Turn-On Delay Time	--	48	80	ns	V _{DS} =325V , I _D =7A, R _G =25Ω (Note 2)
T _r	Rise Time	--	135	170	ns	
T _{d(off)}	Turn-Off Delay Time	--	135	175	ns	
T _f	Fall Time	--	280	320	ns	
Q _g	Total Gate Charge	--	30	65	nC	V _{DS} =520, V _{GS} =10V , I _D =7A (Note 2)
Q _{gs}	Gate-Source Charge	--	6.5	--	nC	
Q _{gd}	Gate-Drain Charge	--	13.5	--	nC	
Dynamic Characteristics						
C _{iss}	Input Capacitance	--	1080	1690	pF	V _{DS} =25V , V _{GS} =0, f=1MHz
C _{oss}	Output Capacitance	--	118	200	pF	
C _{rss}	Reverse Transfer Capacitance	--	30	45	pF	
I _s	Continuous Drain-Source Diode Forward Current (Note 2)	--	--	7	A	
V _{SD}	Diode Forward On-Voltage	--	--	1.4	V	I _s =7A , V _{GS} =0
R _{th(j-c)}	Thermal Resistance, Junction to Case	--	--	2.6	°C/W	

Note 1: Repetitive Rating : Pulse width limited by maximum junction temperature

Note 2: Pulse test: PW <= 300us , duty cycle <= 2%.

Ratings and Characteristic curves

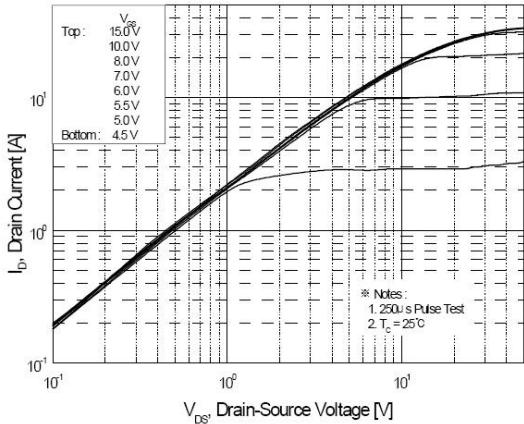


Figure 1. On-Region Characteristics

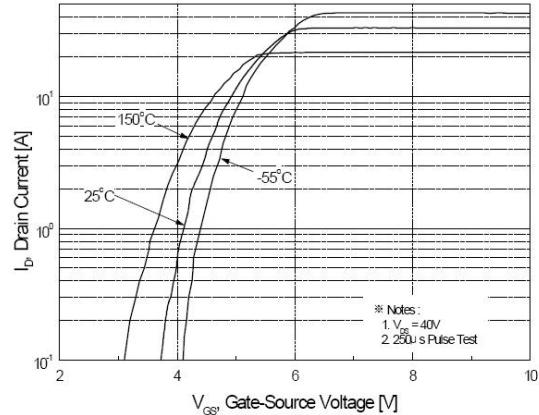


Figure 2. Transfer Characteristics

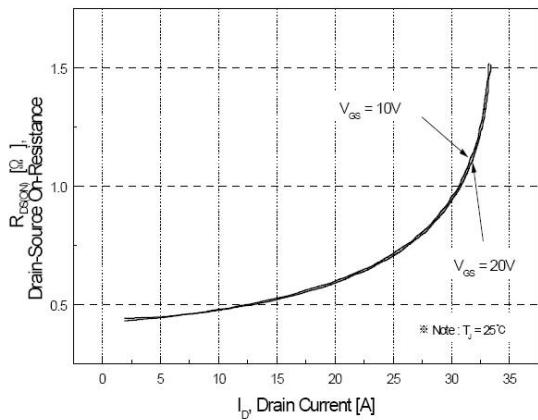


Figure 3. On-Resistance Variation vs. Drain Current and Gate Voltage

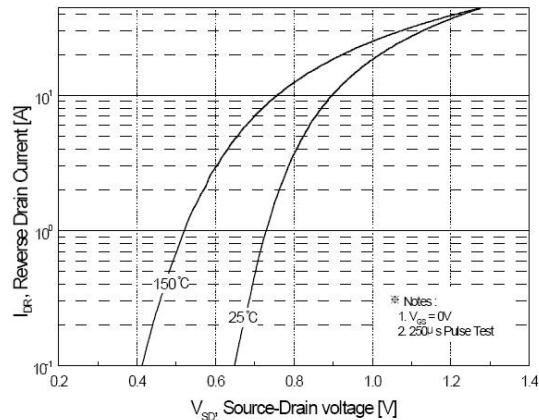


Figure 4. Body Diode Forward Voltage Variation with Source Current and Temperature

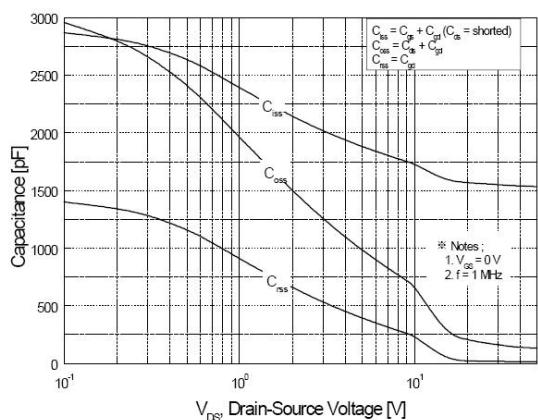


Figure 5. Capacitance Characteristics

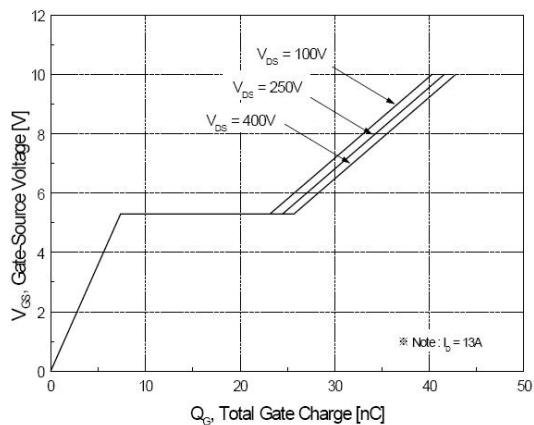
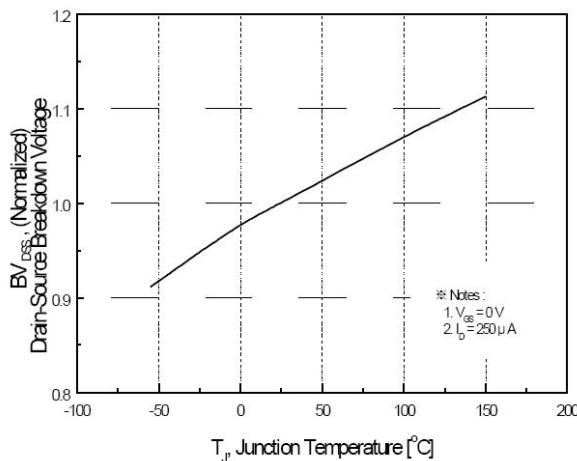
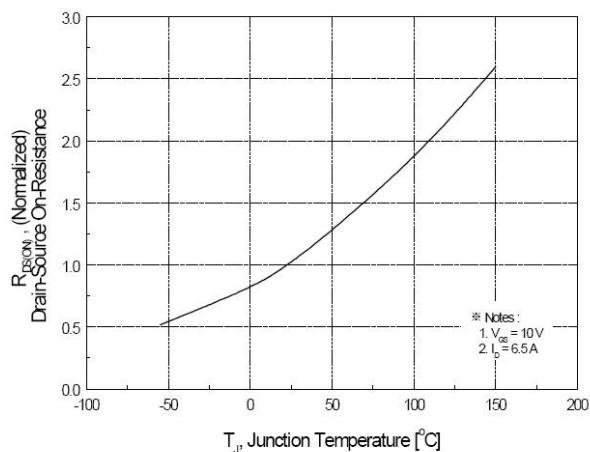


Figure 6. Gate Charge Characteristics



**Figure 7. Breakdown Voltage Variation
vs Temperature**



**Figure 8. On-Resistance Variation
vs Temperature**

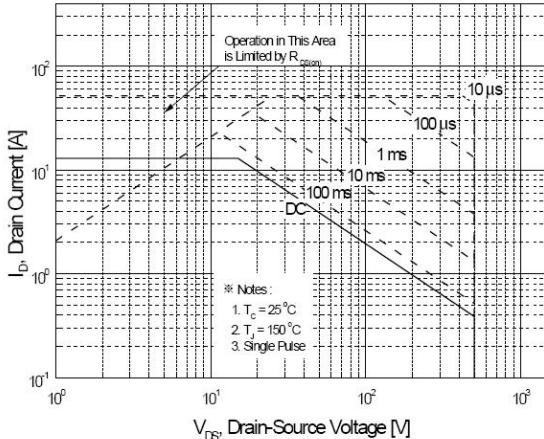
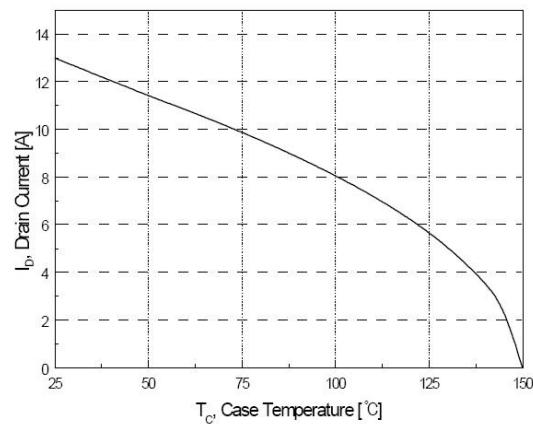


Figure 9. Maximum Safe Operating Area



**Figure 10. Maximum Drain Current
vs Case Temperature**

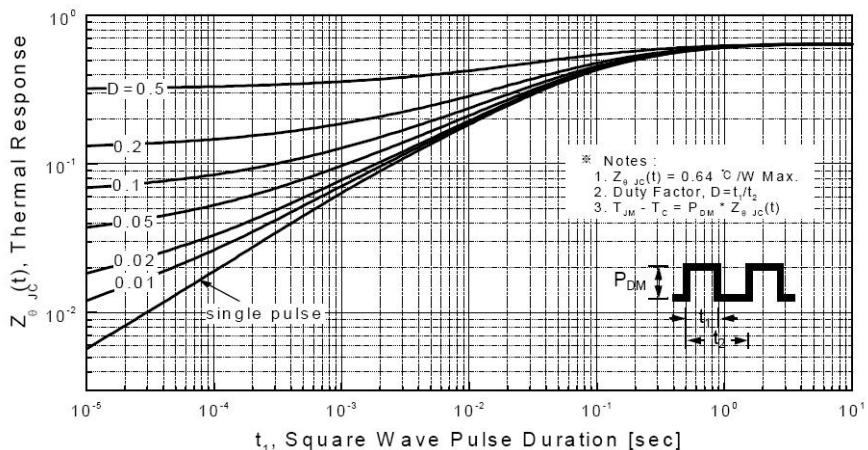


Figure 11. Transient Thermal Response Curve

Fig 12. Gate Charge Test Circuit & Waveform

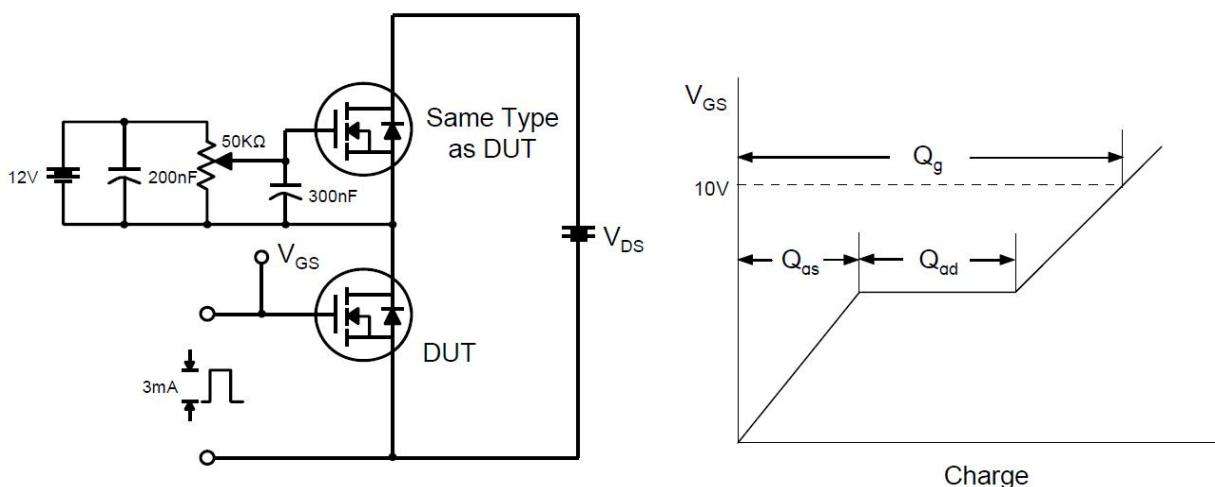


Fig 13. Resistive Switching Test Circuit & Waveforms

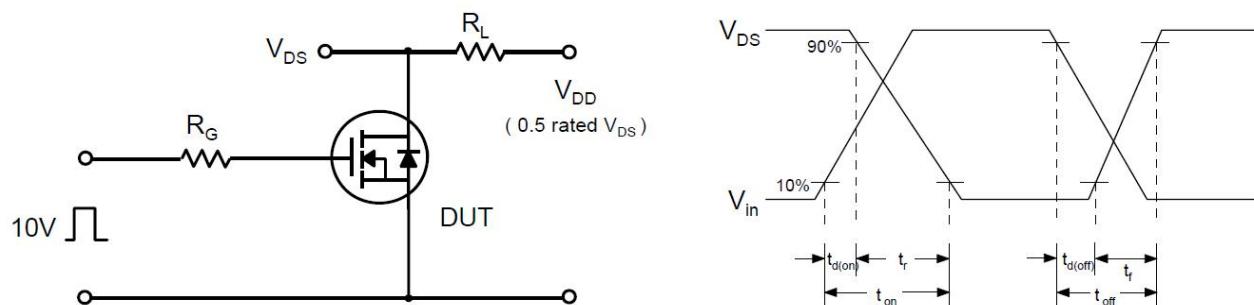


Fig 14. Unclamped Inductive Switching Test Circuit & Waveforms

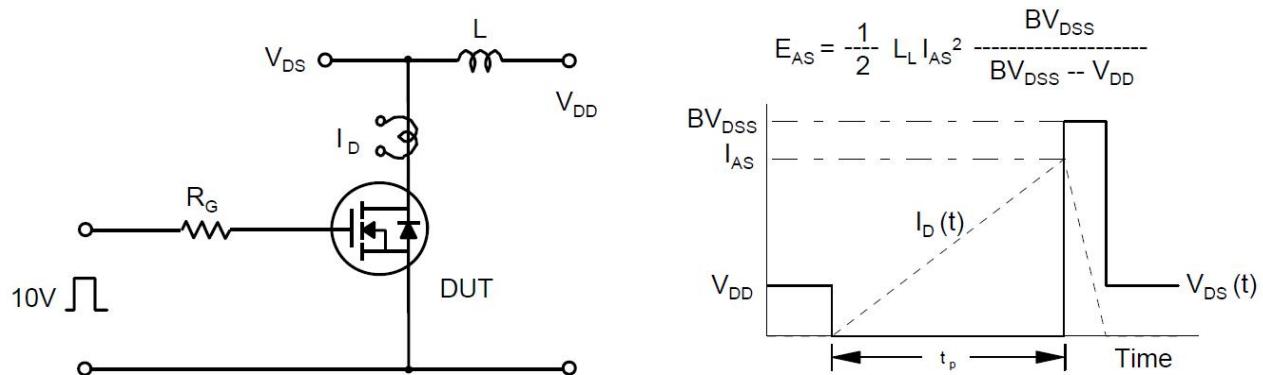
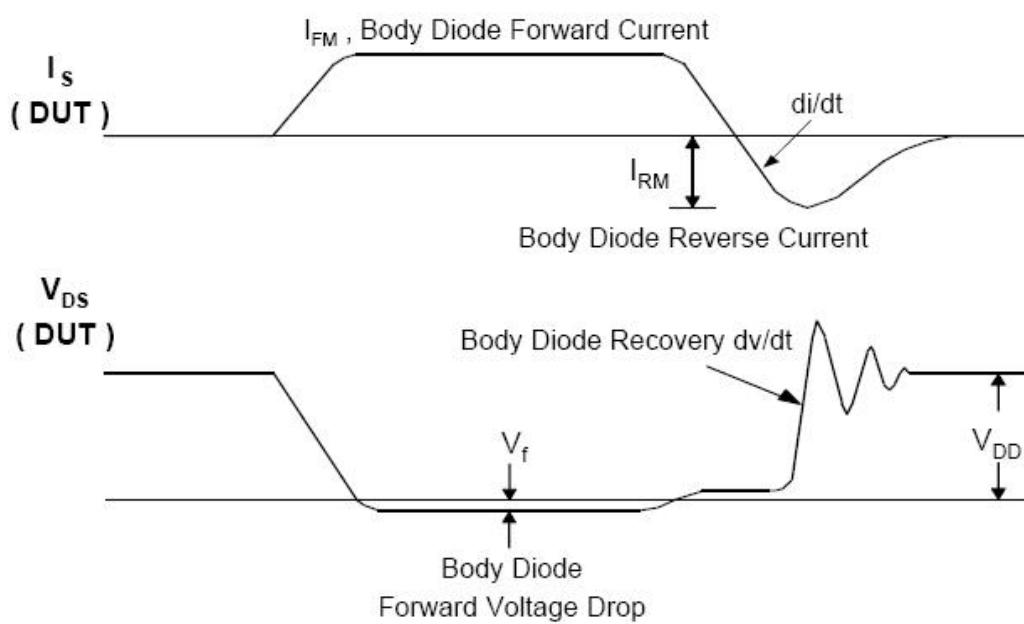
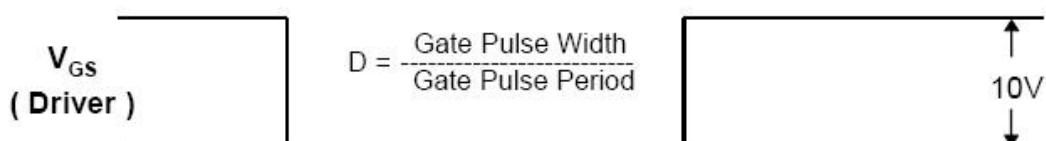
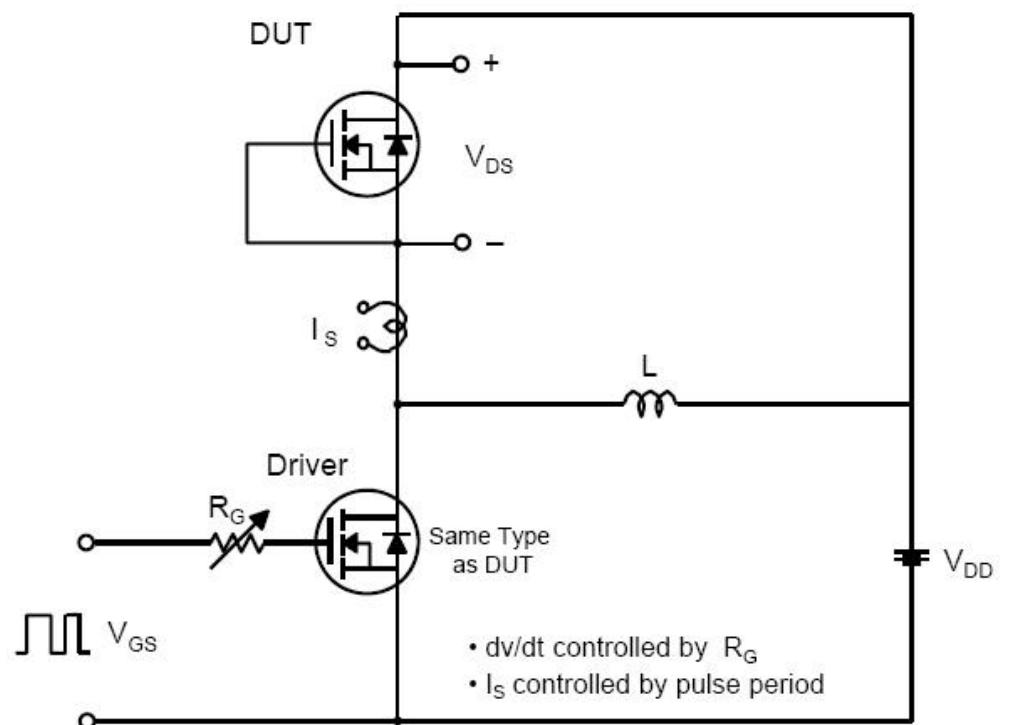
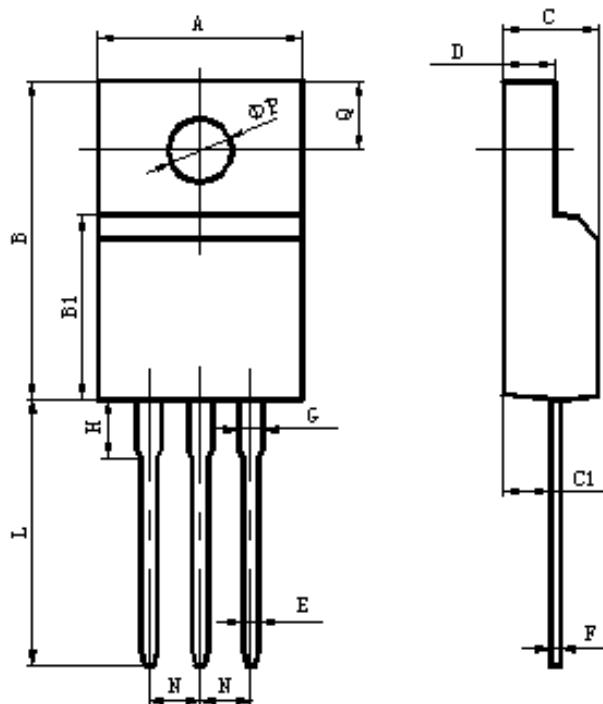


Fig 15. Peak Diode Recovery dv/dt Test Circuit & Waveforms



Package Mechanical Data-TO-220F 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
ΦP	2.90	3.30