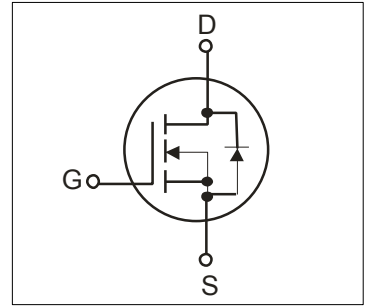


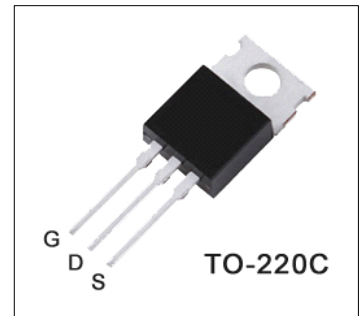
**Features**

- 110A,50V,  $R_{DS(on)}$ (Max 8mΩ)@ $V_{GS}=10V$
- Ultra-low Gate charge(Typical133nC)
- Fast Switching Capability
- 100%Avalanche Tested
- Maximum Junction Temperature Range(150 °C)



**General Description**

This Power MOSFET is produced using Winsemi’s advanced planar stripe,DMOS technology. This latest technology has been especially designed to minimize on-state resistance ,have a lowgate charge with superior switching performance ,and ruggedavalanche characteristics.This Power MOSFET is well suited for synchronous DC-DC Converters and power Management inportable and battery operated products.



**Absolute Maximum Ratings**

Symbol	Parameter	Value	Units
$V_{DSS}$	Drain Source Voltage	50	V
$I_D$	Continuous Drain Current(@ $T_c=25^{\circ}C$ )	110	A
	Continuous Drain Current(@ $T_c=100^{\circ}C$ )	80	A
$I_{DM}$	Drain Current Pulsed (Note1)	390	A
$V_{GS}$	Gate to Source Voltage	±20	V
$E_{AS}$	Single Pulsed Avalanche Energy (note 2)	2970	mJ
$I_{AR}$	Avalanche Current (note 1)	60	A
$E_{AR}$	Repetitive Avalanche Energy (Note1)	20	mJ
dv/dt	Peak Diode Recovery dv /dt (Note3)	5.0	V/ ns
$P_D$	Total Power Dissipation(@ $T_c=25^{\circ}C$ )	200	W
	Derating Factor above 25 °C	1.3	W/°C
$T_J, T_{stg}$	Junction and Storage Temperature	-55~150	°C
$T_L$	Channel Temperature	300	°C

**Thermal Characteristics**

Symbol	Parameter	Value			Units
		Min	Typ	Max	
$R_{QJC}$	Thermal Resistance , Junction -to -Case	-	-	0.63	°C/W
$R_{QJA}$	Thermal Resistance , Junction-to -Ambient	-	-	62	°C/W

## Electrical Characteristics(Tc=25°C)

Characteristics		Symbol	Test Condition	Min	Type	Max	Unit
Gate leakage current		I <sub>GSS</sub>	V <sub>GS</sub> = ±30 V, V <sub>DS</sub> = 0 V	-	-	±100	nA
Gate-source breakdown voltage		V <sub>(BR)GSS</sub>	I <sub>G</sub> =±10 μA, V <sub>DS</sub> =0V	±30	-	-	V
Drain cut -off current		I <sub>DSS</sub>	V <sub>DS</sub> =50V, V <sub>GS</sub> =0V	-	-	10	μA
			V <sub>DS</sub> =40V, T <sub>C</sub> =125°C	-	-	10	μA
Drain -source breakdown voltage		V <sub>(BR)DSS</sub>	I <sub>D</sub> =250 μA, V <sub>GS</sub> =0V	50	-	-	V
Gate threshold voltage		V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250 μA	2	-	4	V
Drain -source ON resistance		R <sub>DS(ON)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =60A	-	-	8.0	mΩ
Forward Transconductance		g <sub>fs</sub>	V <sub>DS</sub> =25V, I <sub>D</sub> =60A	44	-	-	S
Input capacitance		C <sub>iSS</sub>	V <sub>DS</sub> =25V,	-	3100	-	pF
Reverse transfer capacitance		C <sub>rSS</sub>	V <sub>GS</sub> =0V,	-	199	-	
Output capacitance		C <sub>oss</sub>	f=1MHz	-	749	-	
Switching time	Turn-On rise time	t <sub>r</sub>	V <sub>DD</sub> =28V, I <sub>D</sub> =60A R <sub>G</sub> =25Ω  (Note4,5)	-	120	-	ns
	Turn-On delay time	t <sub>d(on)</sub>		-	16	-	
	Turn-Off Fall time	t <sub>f</sub>		-	70	-	
	Turn-Off delay time	t <sub>d(off)</sub>		-	55	-	
Total gate charge(gate-source plus gate-drain)		Q <sub>g</sub>	V <sub>DS</sub> =44V, V <sub>GS</sub> =10V, I <sub>D</sub> =60A  (Note4,5)	-	-	115	nC
Gate-source charge		Q <sub>gs</sub>		-	-	23	
Gate-drain("miller") Charge		Q <sub>gd</sub>		-	-	48	

## Source-Drain Ratings and Characteristics(Ta=25°C)

Characteristics	Symbol	Test Condition	Min	Type	Max	Unit
Continuous drain reverse current	I <sub>DR</sub>	-	-	-	110	A
Pulse drain reverse current	I <sub>DRP</sub>	-	-	-	390	A
Forward voltage(diode)	V <sub>DSF</sub>	I <sub>DR</sub> =60A, V <sub>GS</sub> =0V	-	-	1.5	V
Reverse recovery time	t <sub>rr</sub>	I <sub>DR</sub> =60A, V <sub>GS</sub> =0V,	-	425	-	ns
Reverse recovery charge	Q <sub>rr</sub>	di <sub>DR</sub> / dt =100 A / μs	-	4.31	-	μC

Note 1.Repeativity rating :pulse width limited by junction temperature

2.L=0.15mH I<sub>AS</sub>=60A, V<sub>DD</sub>=50V, R<sub>G</sub>=25Ω, Starting T<sub>J</sub>=25°C

3.I<sub>SD</sub>≤60A, di/dt≤300A/us, V<sub>DD</sub><BV<sub>DSS</sub>, T<sub>J</sub>≤150°C

4.Pulse Test:Pulse Width≤300us, Duty Cycles≤2%

5. Essentially independent of operating temperature.

This transistor is an electrostatic sensitive device

Please handle with caution

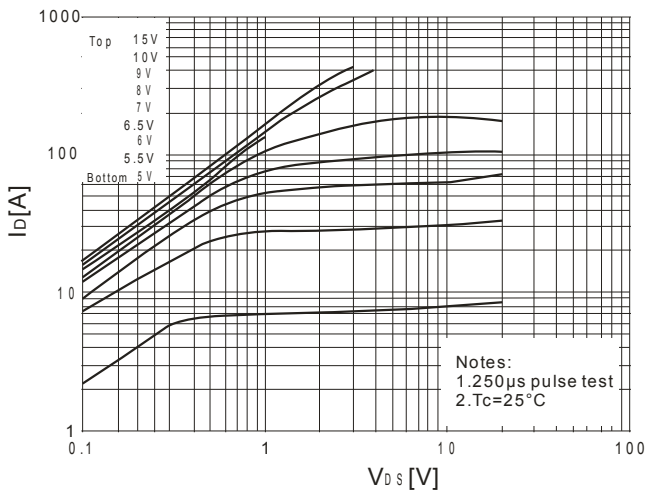


Fig.1 On Region Characteristics

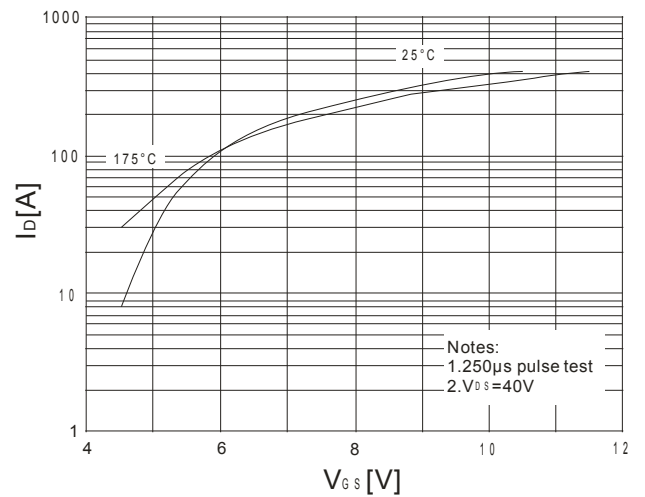


Fig.2 Transfer Characteristics

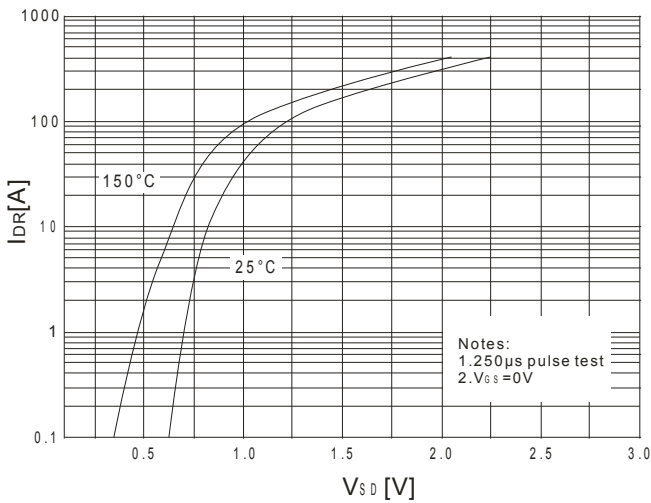


Fig.3 Body Diode Forward Voltage Variation vs. Source Current and Temperature

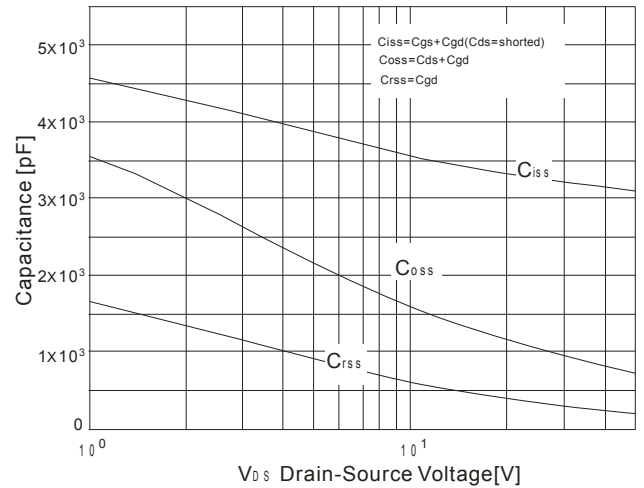


Fig.4. Capacitance Characteristics

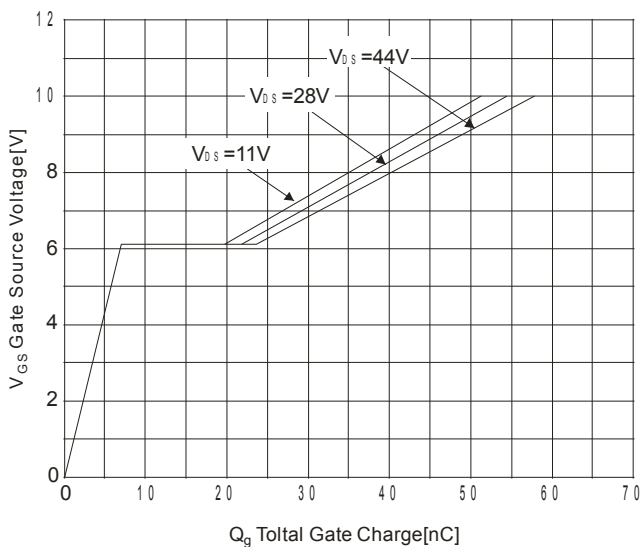


Fig.5 Gate Charge Characteristics

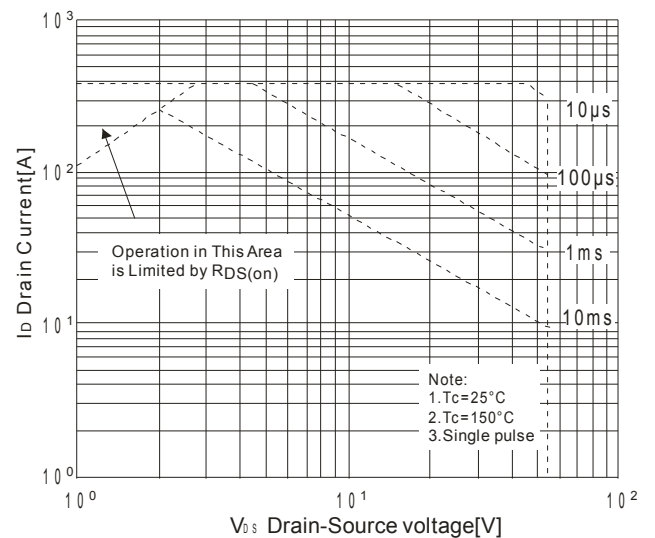


Fig.6 Maximum Safe Operation Area

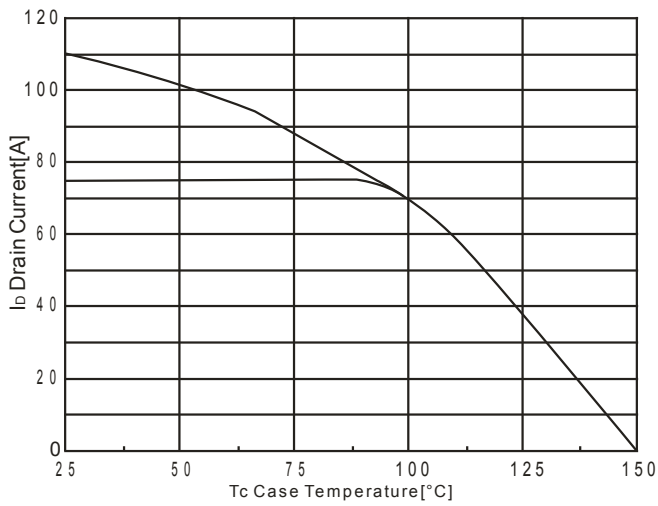


Fig.7 Maximum Drain Current vs Case temperature

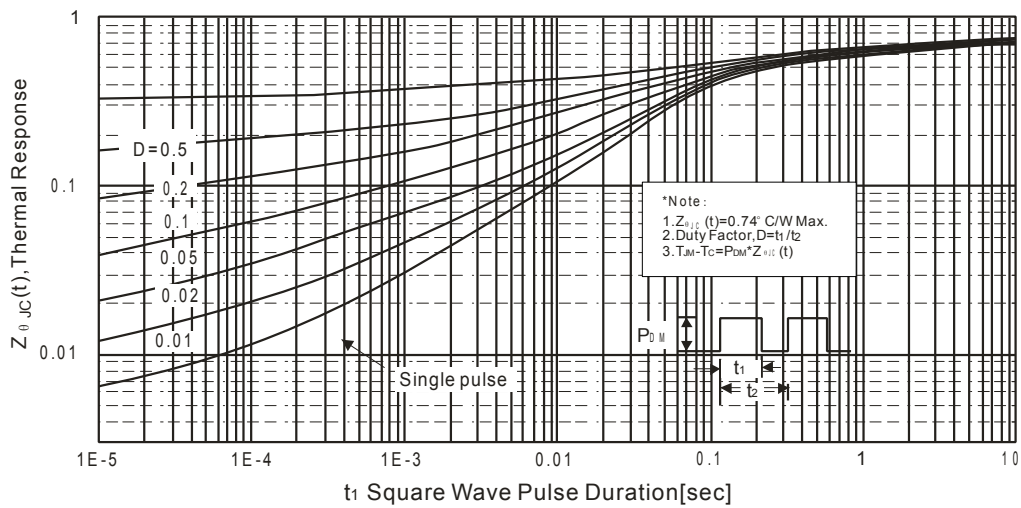


Fig.8 Transient thermal Response Curve

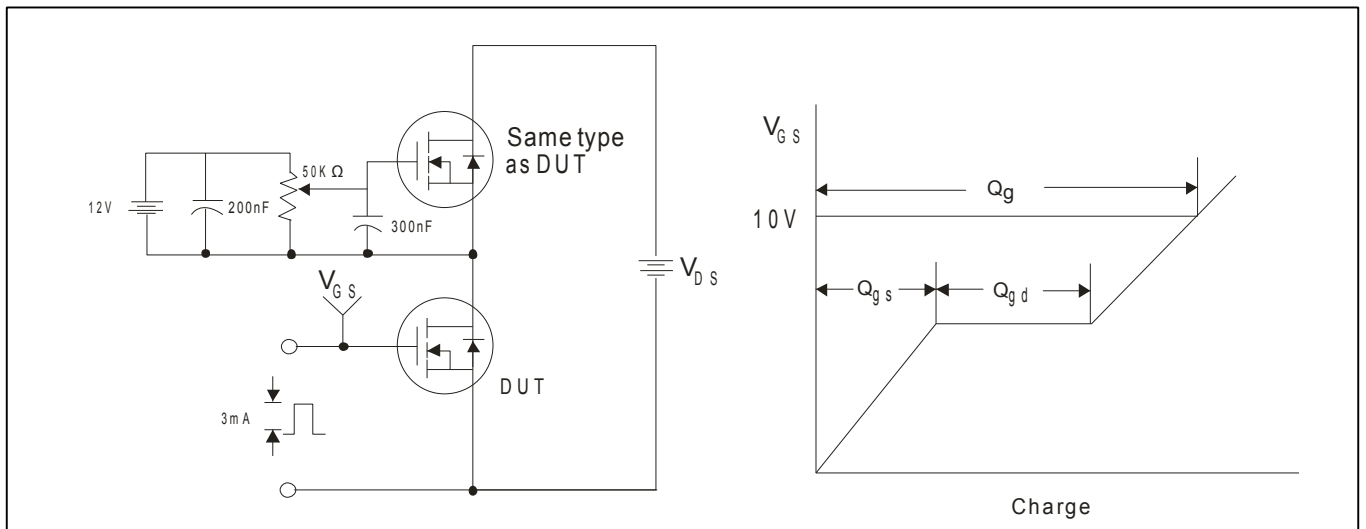


Fig.9 Gate Test circuit & Waveform

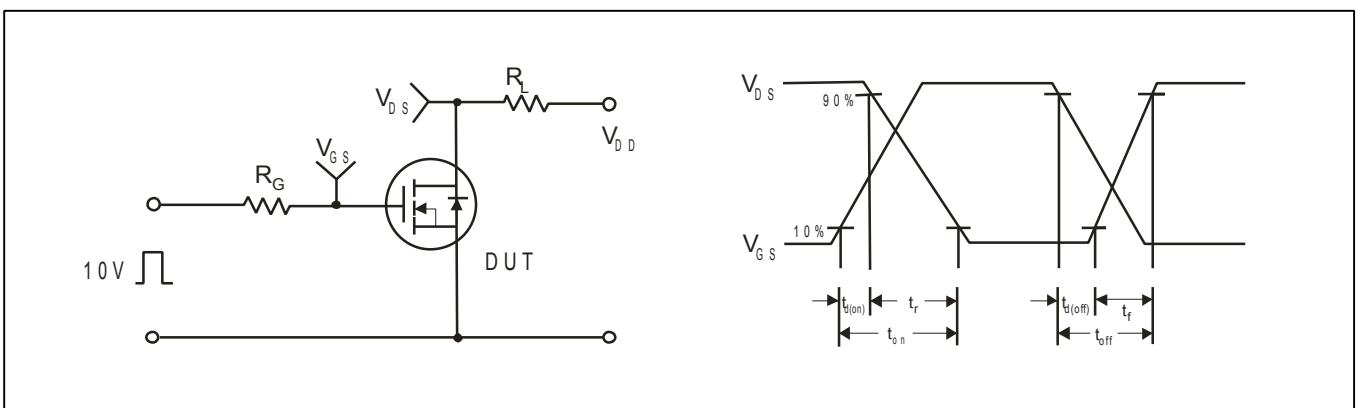


Fig.10 Resistive Switching Test Circuit & Waveform

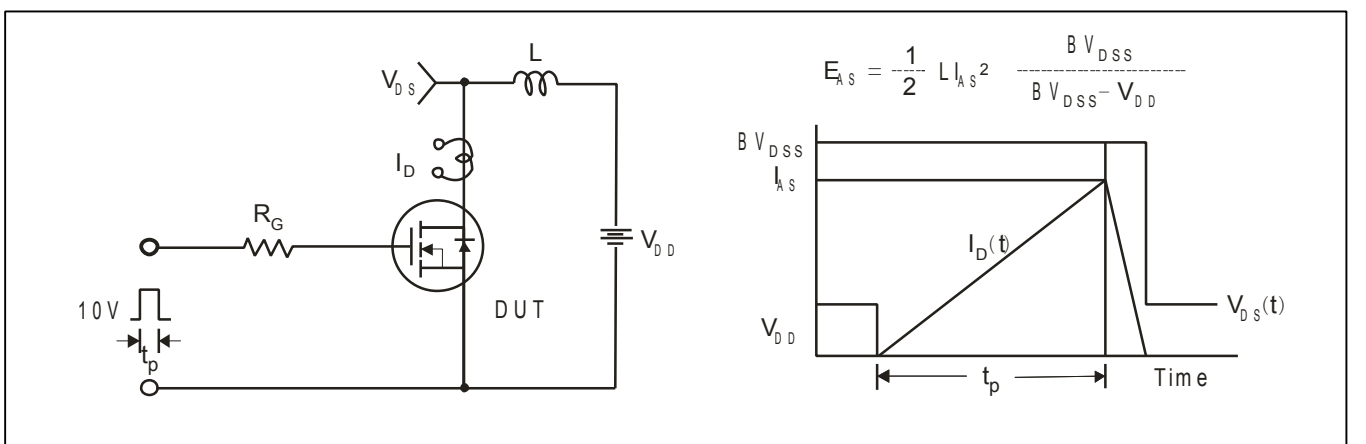


Fig.11 Unclamped Inductive Switching Test Circuit & Waveform

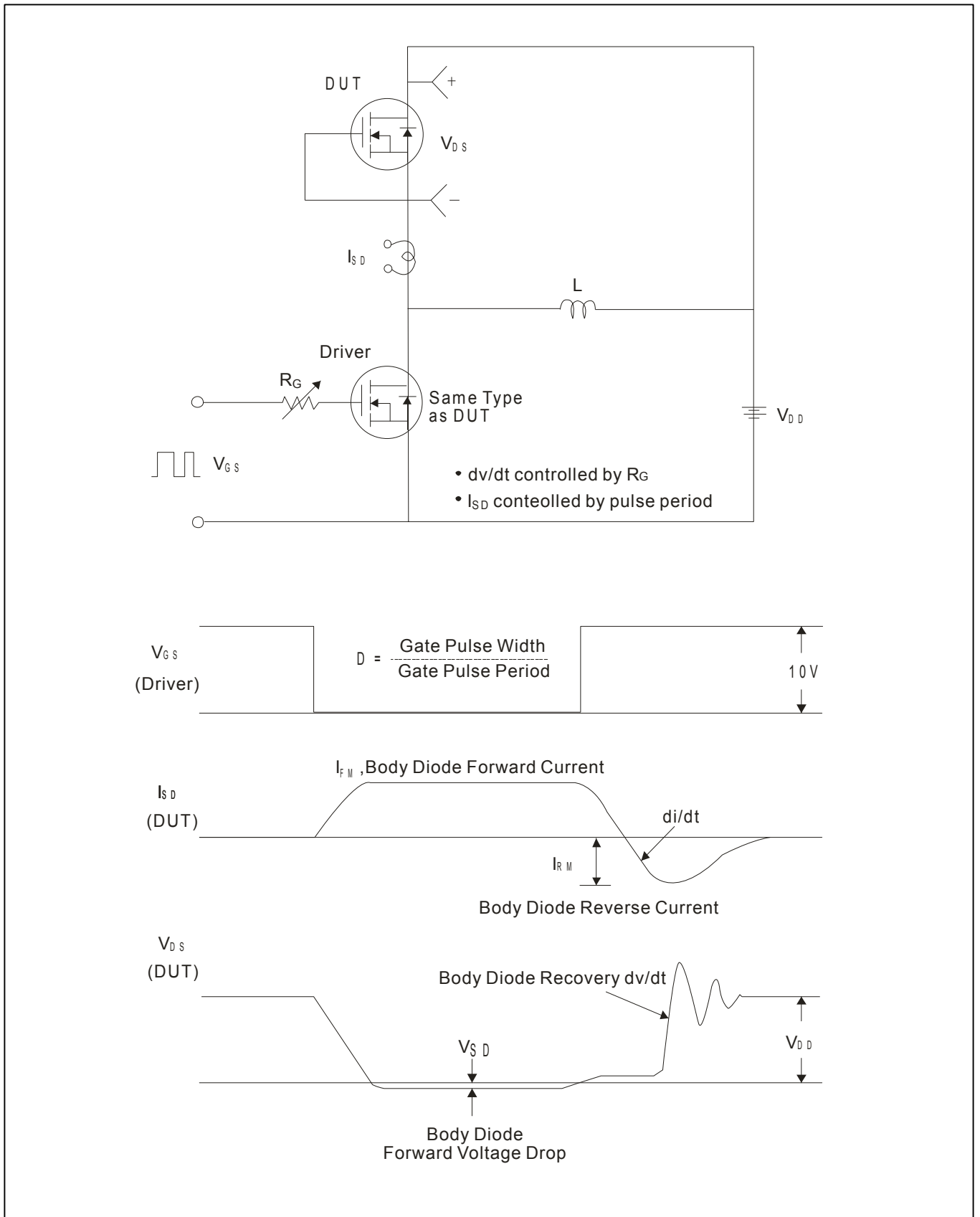
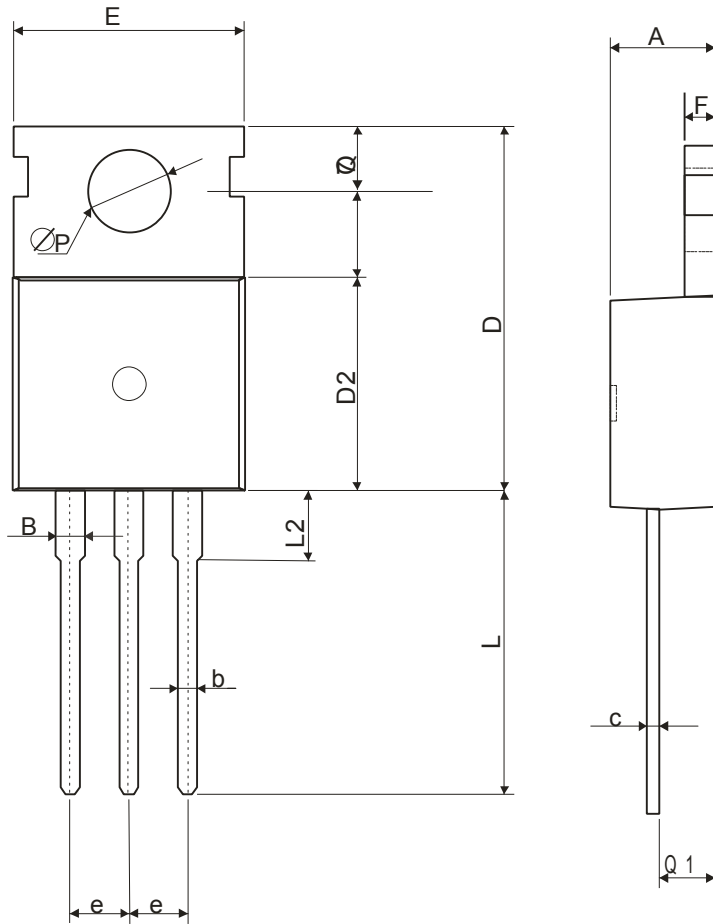


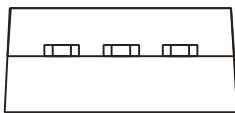
Fig.12 Peak Diode Recovery dv/dt Test Circuit & Waveform

TO-220 Package Dimension

Unit:mm



符号	MIN	MAX
A	4.30	4.70
B	1.10	1.40
b	0.70	0.95
c	0.40	0.65
d	15.2	16.2
D 2	9.00	9.40
E	9.70	10.10
e	2.39	2.69
F	1.25	1.40
L	12.60	13.60
L 2	2.80	3.20
Q	2.60	3.00
Q 1	2.20	2.60
P	3.50	3.80



**NOTE:**

- 1.We strongly recommend customers check carefully on the trademark when buying our product, if there is any question, please don't be hesitate to contact us.
- 2.Please do not exceed the absolute maximum ratings of the device when circuit designing.
- 3.Winsemi Microelectronics Co., Ltd reserved the right to make changes in this specification sheet and is subject to change without prior notice.

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