

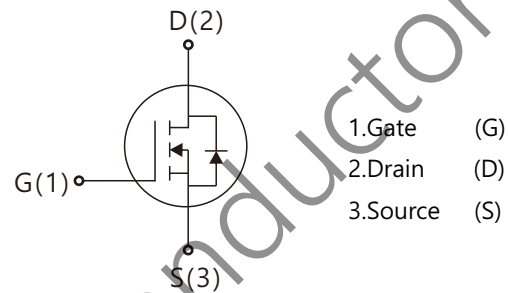
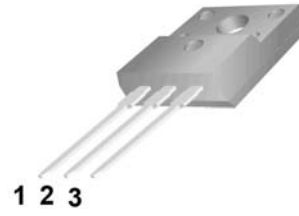


## WGF65R760

## Features:

- Low Intrinsic Capacitances.
- Excellent Switching Characteristics.
- Extended Safe Operating Area.
- Unrivalled Gate Charge : $Q_g=9.5nC$ (Typ.).
- $BV_{DSS}=650V, I_D=7A$
- $R_{DS(on)} : 0.76\Omega$  (Max) @ $V_G=10V$
- 100% Avalanche Tested

TO-220F



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

Symbol	Parameter	Value	Unit
$V_{DSS}$	Drain-Source Voltage	650	V
$I_D$	Drain Current	$T_j=25^\circ C$	7.0
		$T_j=100^\circ C$	4.7
$V_{GSS}$	Gate - Source voltage	$\pm 30$	V
$E_{AS}$	Single Pulse Avalanche Energy (note1)	140	mJ
$I_{DM}$	Pulsed Drain Current (note2)	21	A
$P_D$	Power Dissipation ( $T_j=25^\circ C$ )	26	W
$T_j$	Junction Temperature(Max)	150	$^\circ C$
$T_{stg}$	Storage Temperature	-55~+150	$^\circ C$
dv/dt	MOSFET dv/dt ruggedness, $V_{DS}=0V...480V$	50	V/nS

## Thermal Characteristics

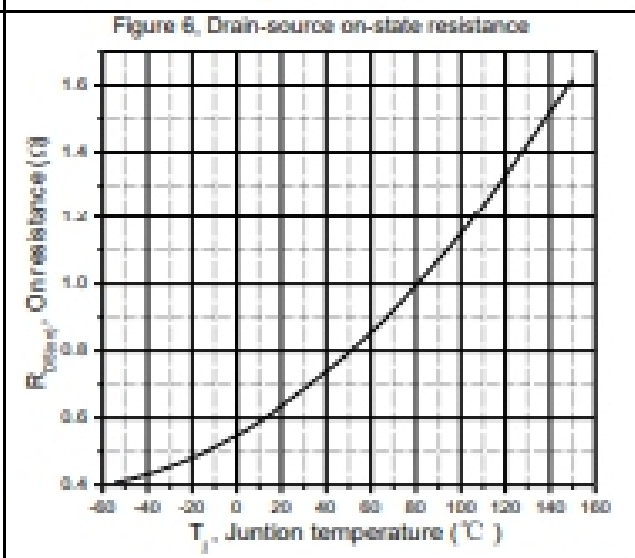
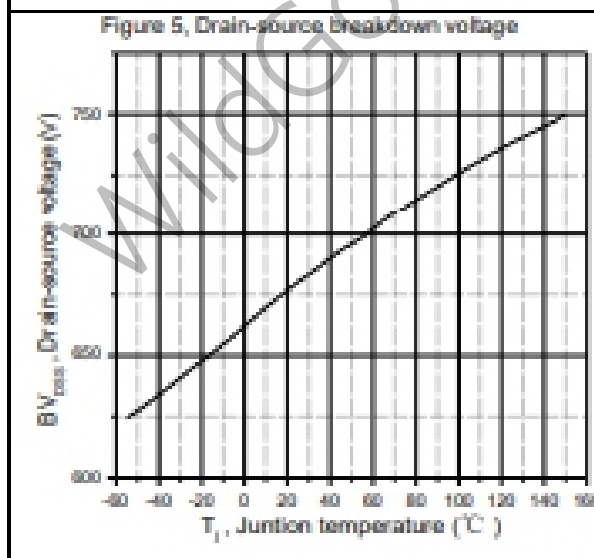
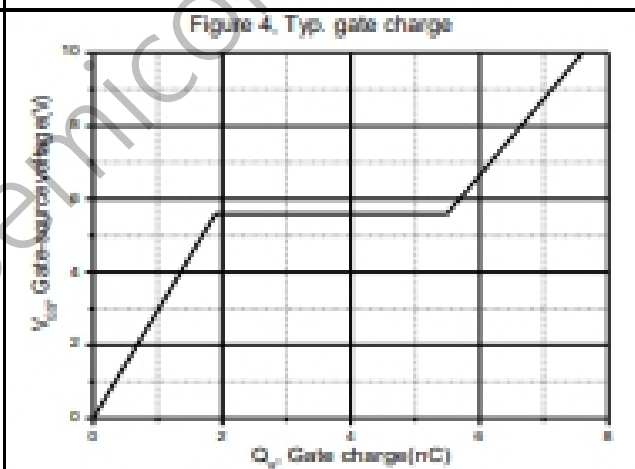
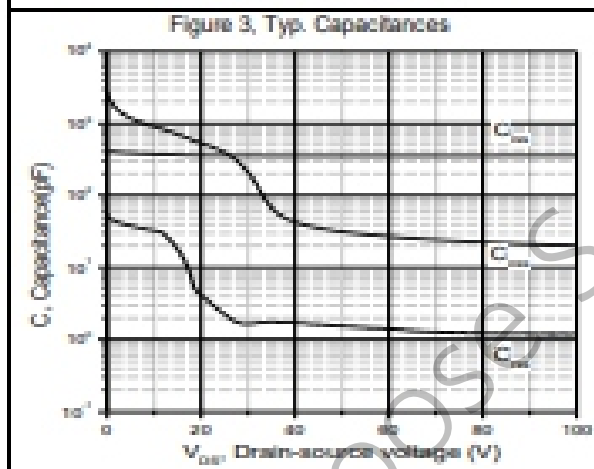
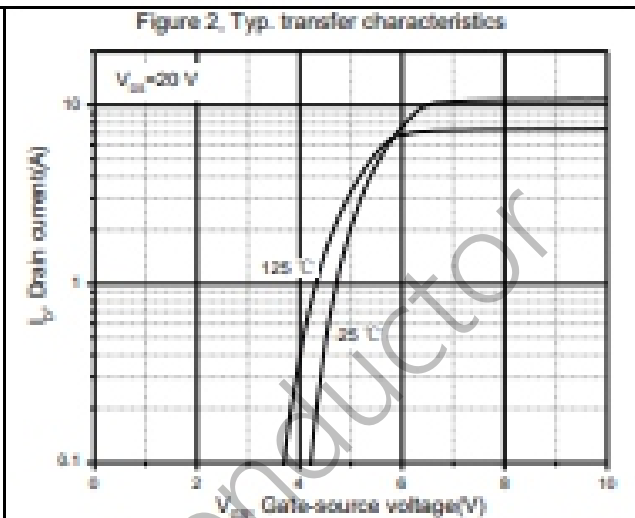
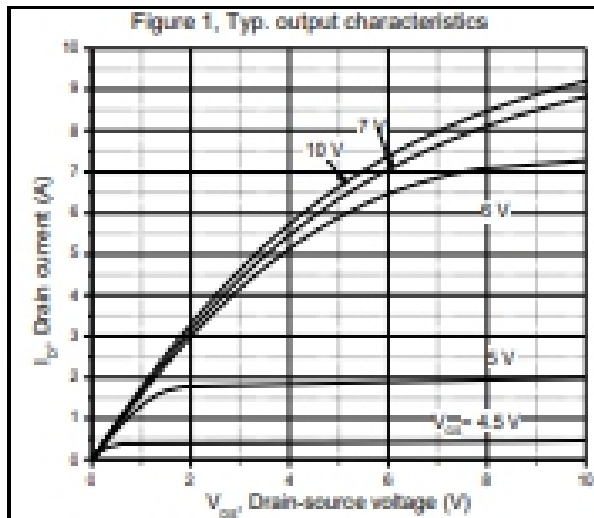
Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JC}$	Thermal Resistance Junction to Case	-	4.8	$^\circ C/W$
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	-	62.5	$^\circ C/W$

## Electrical Characteristics (Ta=25°C unless otherwise noted)

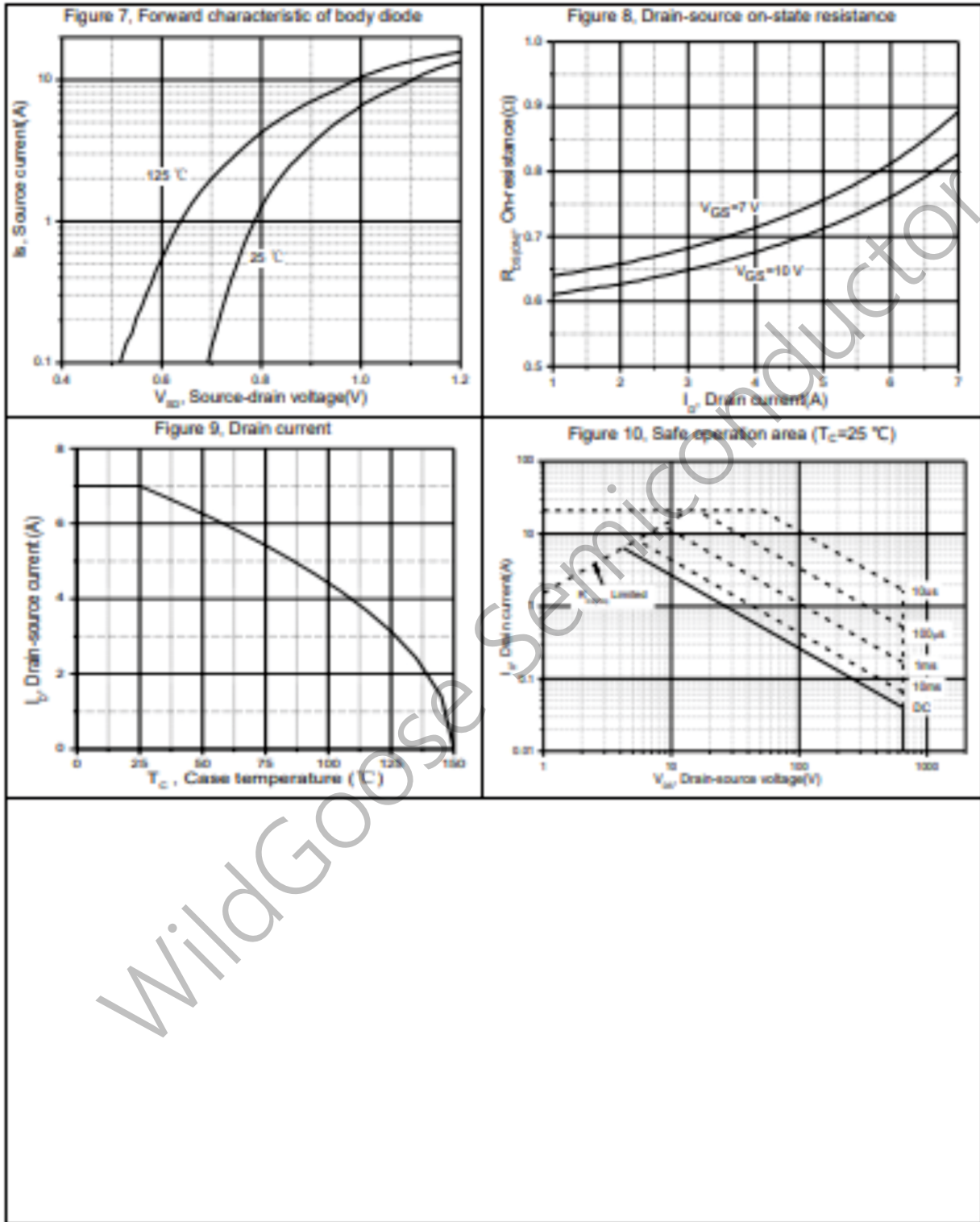
Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
Off Characteristics						
$BV_{DSS}$	Drain-Source Breakdown Voltage	$I_D=250\mu A, V_{GS}=0$	650	-	-	V
$\Delta BV_{DSS}/\Delta T_J$	Breakdown Voltage Temperature Coefficient	$I_D=250\mu A$ , Reference to 25°C	-	0.67	-	V/°C
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS}=650V, V_{GS}=0V$	-	-	10	$\mu A$
		$V_{DS}=520V, T_J=125^\circ C$	-	-	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	$I_D=250\mu A, V_{DS}=V_{GS}$	2	-	4	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$I_D=3.5A, V_{GS}=10V$	-	0.70	0.76	$\Omega$
Dynamic Characteristics						
$C_{iss}$	Input Capacitance	$V_{DS}=25V, V_{GS}=0, f=1.0MHz$	-	431.7	-	pF
$C_{oss}$	Output Capacitance		-	24.7	-	
$C_{rss}$	Reverse Transfer Capacitance		-	7.3	-	
Switching Characteristics						
$T_d(on)$	Turn-On Delay Time	$V_{DD}=400V, I_D=5A, R_G=25\Omega$ (Note 3,4)	-	19.6	-	nS
$T_r$	Turn-on Rise Time		-	25.2	-	
$T_d(off)$	Turn-Off Delay Time		-	47.9	-	
$T_f$	Turn-Off Rise Time		-	22.5	-	
$Q_g$	Total Gate Charge	$V_{DS}=400V, V_{GS}=10V, I_D=5A$ (Note3,4)	-	9.5	-	nC
$Q_{gs}$	Gate-Source Charge		-	3.0	-	
$Q_{gd}$	Gate-Drain Charge		-	3.3	-	
Drain-Source Diode Characteristics and Maximum Ratings						
$I_S$	Max. Diode Forward Current	-	-	-	7	A
$I_{SM}$	Max. Pulsed Forward Current	-	-	-	21	
$V_{SD}$	Diode Forward Voltage	$I_D=7A$	-	-	1.3	V
$T_{rr}$	Reverse Recovery Time	$I_S=5A, V_{GS}=0V, diF/dt=100A/\mu s$	-	19.2	-	nS
$Q_{rr}$	Reverse Recovery Charge	(Note3)	-	1.6	-	$\mu C$

- Notes : 1, L=0.5mH, IAS= 7A, VDD=50V, RG=25 $\Omega$ , Starting T<sub>J</sub> =25°C  
 2, Repetitive Rating : Pulse width limited by maximum junction temperature  
 3, Pulse Test : Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2\%$   
 4, Essentially Independent of Operating Temperature

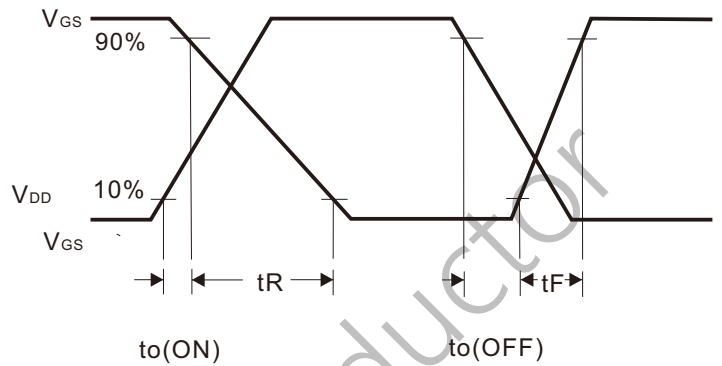
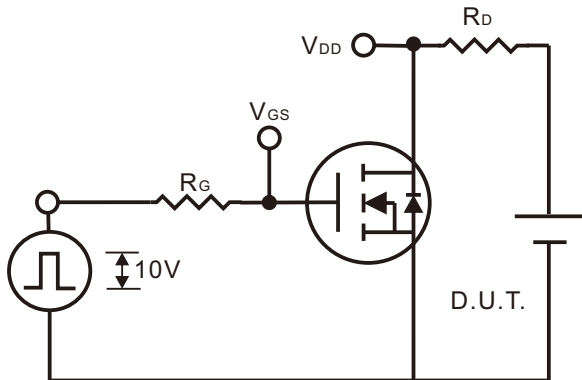
Typical Characteristics



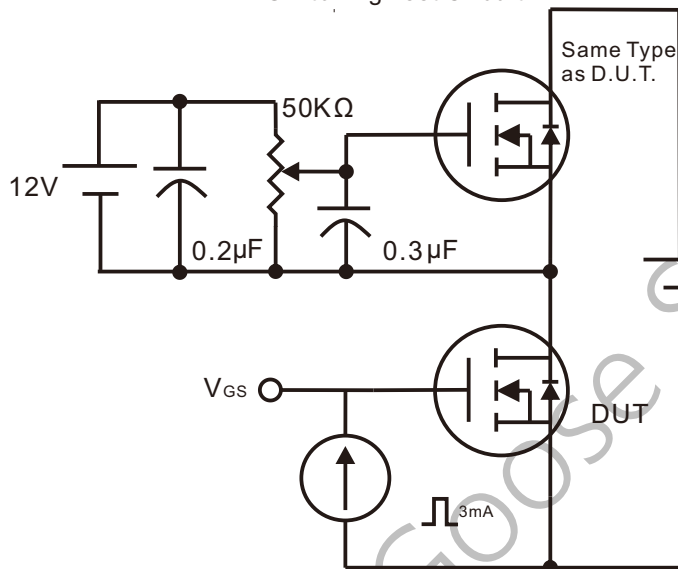
Typical Characteristics (Continued)



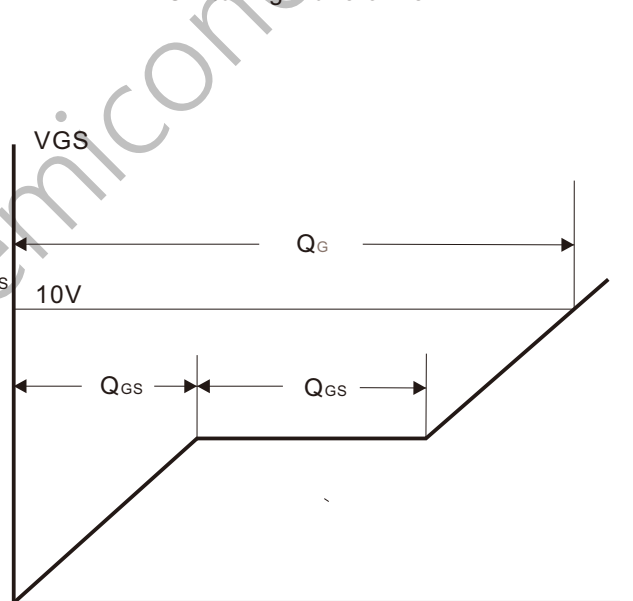
Gate Charge Test Circuit & Waveform



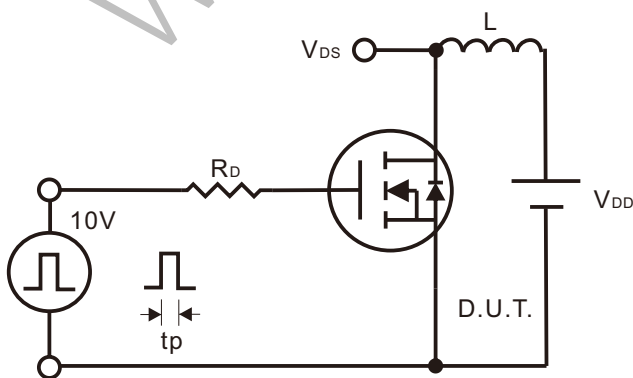
Switching Test Circuit



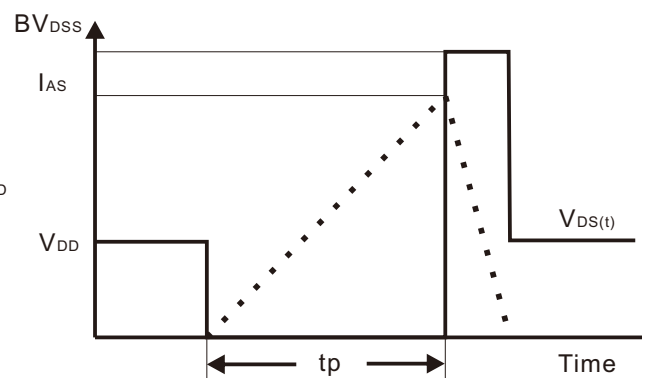
Switching Waveforms



Gate Charge Test Circuit



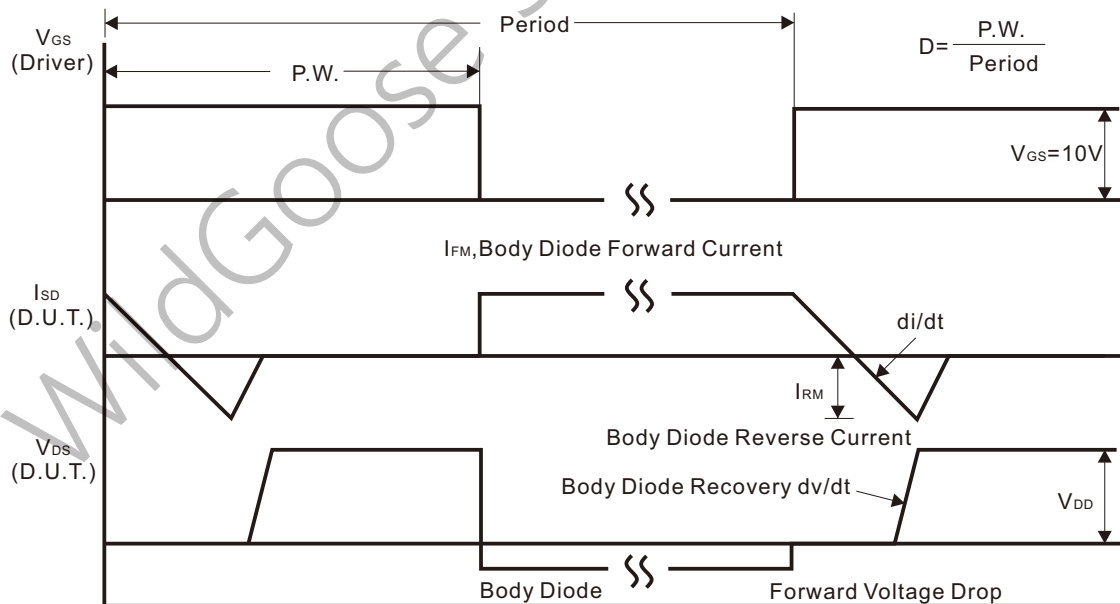
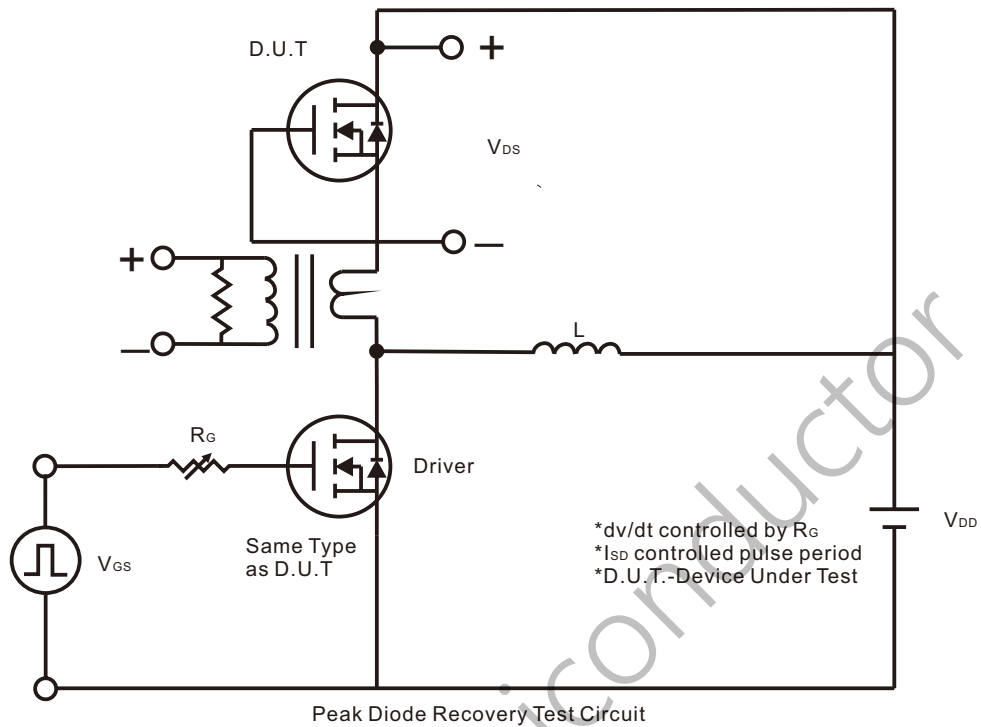
Gate Charge Waveform



Unclamped Inductive Switching Test Circuit

Unclamped Inductive Switching Waveforms

Peak Diode Recovery dv/dt Test Circuit & Waveform



Package Dimension

TO-220F

Unit: mm

