

Dynamic Ratings

Description	Symbol	Conditions	Min.	Typ.	Max.	Unit
Forward Transconductance	g_{fs}	$I_D=35A$ $V_{DS}=10V$	25	50	—	S
Input Capacitance	C_{iss}	$V_{DS}=25V$ $V_{GS}=0V$ $f=1MHz$	—	7800	—	pF
Output Capacitance	C_{oss}		—	1050	—	
Reverse Transfer Capacitance	C_{rss}		—	550	—	
Turn-On Time	$t_{d(on)}$	$V_{CC}=38V, V_{GS}=10V$ $I_D=70A, R_G=10\Omega$ See Fig.3 and Fig.4	—	50	—	ns
	t_r		—	140	—	
Turn-Off Time	$t_{d(off)}$		—	150	—	
	t_f		—	170	—	
Total Gate Charge	Q_G	$V_{DD}=38V, I_D=70A$ $V_{GS}=10V$ See Fig.5	—	140	—	nC
Gate-Source Charge	Q_{GS}		—	30	—	
Gate-Drain Charge	Q_{GD}		—	45	—	

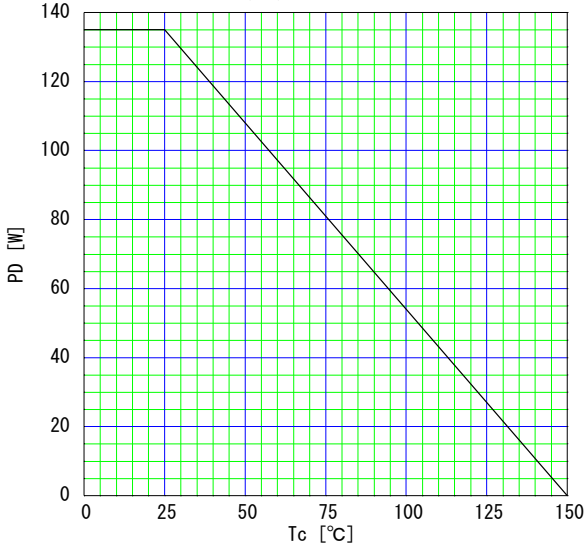
Reverse Ratings

Description	Symbol	Conditions	Min.	Typ.	Max.	Unit
Avalanche Capability	I_{AV}	$L=25\mu H, T_{ch}=25^\circ C$ See Fig.1 and Fig.2	70	—	—	A
Diode Forward On- Voltage	V_{SD}	$I_F=70A, V_{GS}=0V$ $T_{ch}=25^\circ C$	—	1.3	1.65	V
Reverse Recovery Time	t_{rr}	$I_F=70A, V_{GS}=0V$ $-di/dt=100A/\mu s$ $T_{ch}=25^\circ C$	—	95	—	ns
Reverse Recovery Charge	Q_{rr}		—	0.3	—	μC

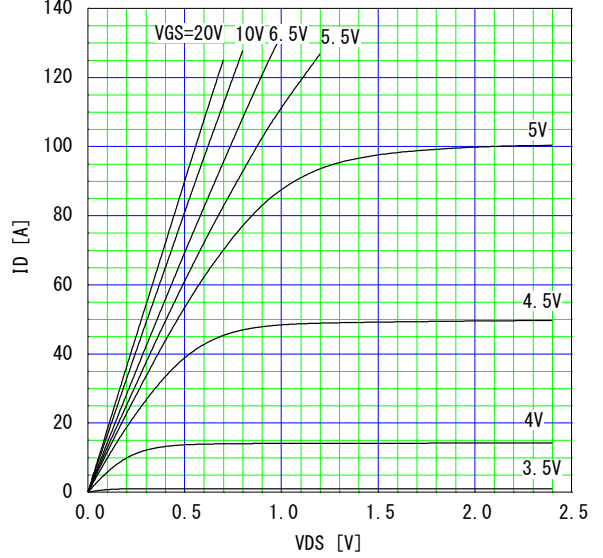
■ Thermal Characteristics

Description	Symbol	Min.	Typ.	Max.	Unit
Cannel to Case	$R_{th(ch-c)}$	—	—	0.926	$^\circ C/W$
Cannel to Ambient	$R_{th(ch-a)}$	—	—	75.0	$^\circ C/W$

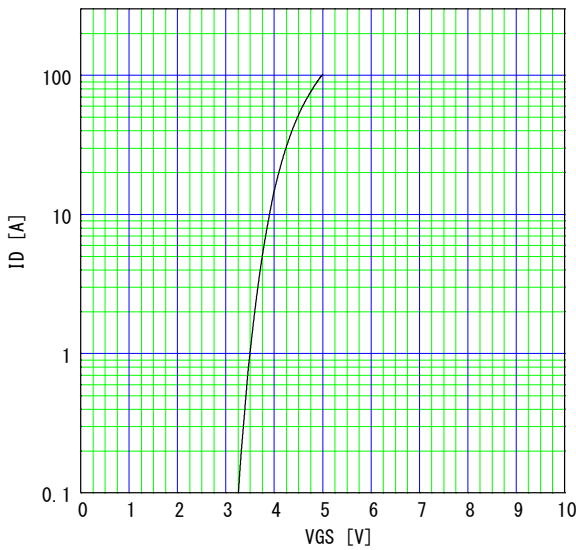
Power Dissipation
 $PD=f(T_c)$



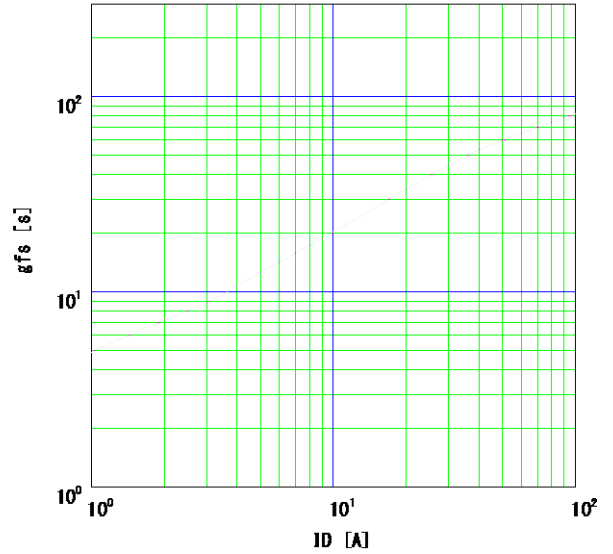
Typical output characteristics
 $ID=f(V_{DS})$: 80 μ s pulse test, $T_c=25^\circ\text{C}$



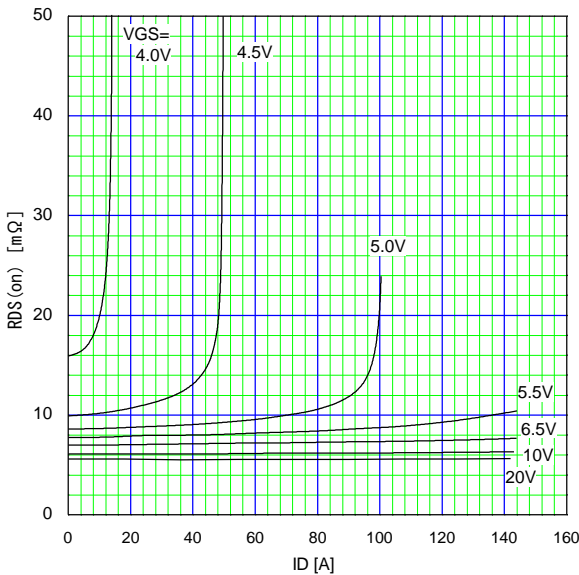
Typical transfer characteristics
 $ID=f(V_{GS})$: 80 μ s pulse test, $V_{DS}=10\text{V}$, $T_{ch}=25^\circ\text{C}$



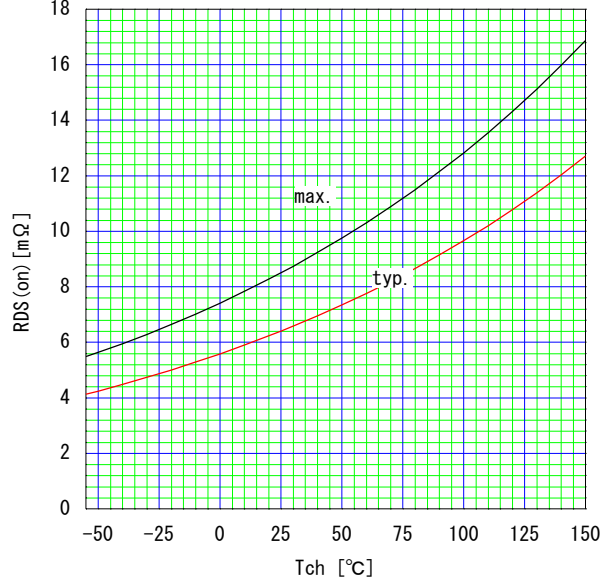
Typical forward transconductance
 $g_{fs}=f(I_D)$: 80 μ s pulse test, $V_{DS}=10\text{V}$, $T_{ch}=25^\circ\text{C}$



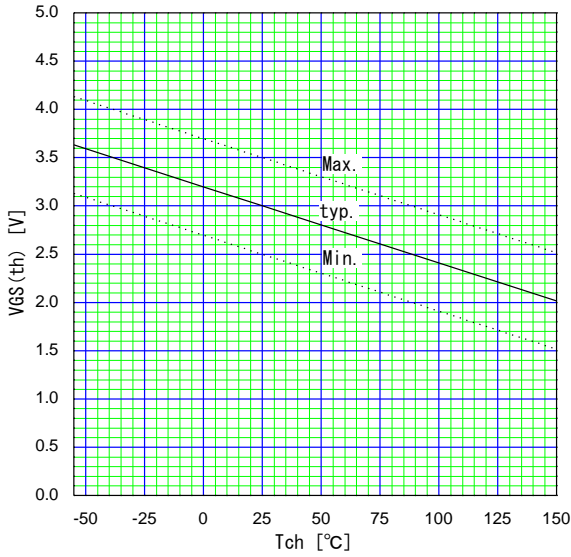
Typical Drain-Source on-State Resistance
 $R_{DS(on)}=f(I_D)$: 80 μ s pulse test, $T_{ch}=25^\circ\text{C}$



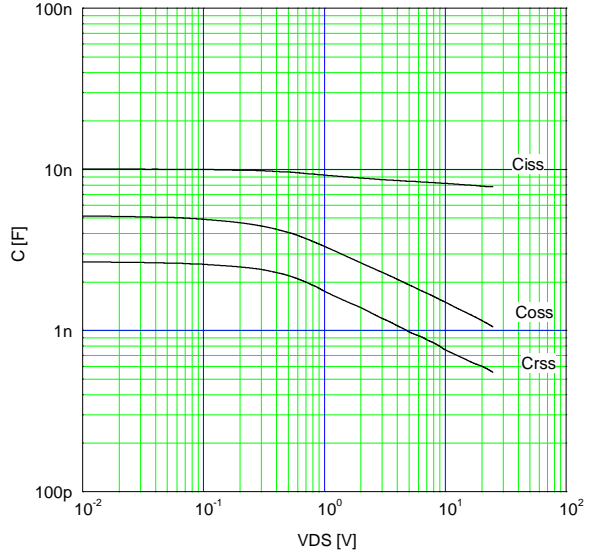
Drain-source on-state resistance
 $R_{DS(on)}=f(T_{ch})$: $I_D=35\text{A}$, $V_{GS}=10\text{V}$



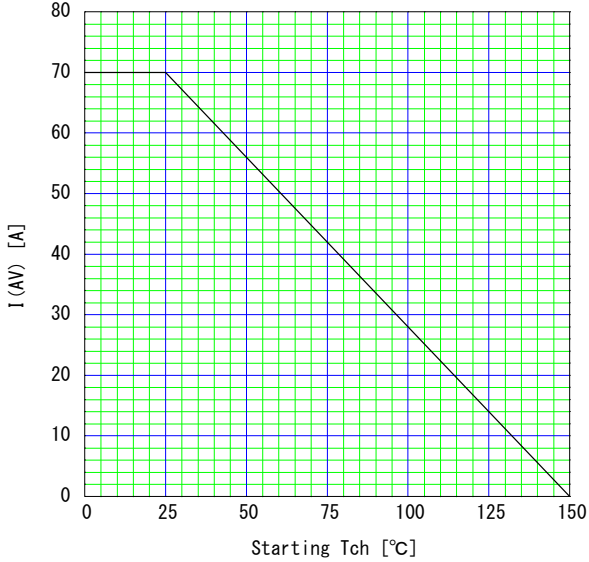
Gate Threshold Voltage vs. Tch
 $V_{GS(th)} = f(T_{ch}) : V_{DS} = V_{GS}, I_D = 10mA$



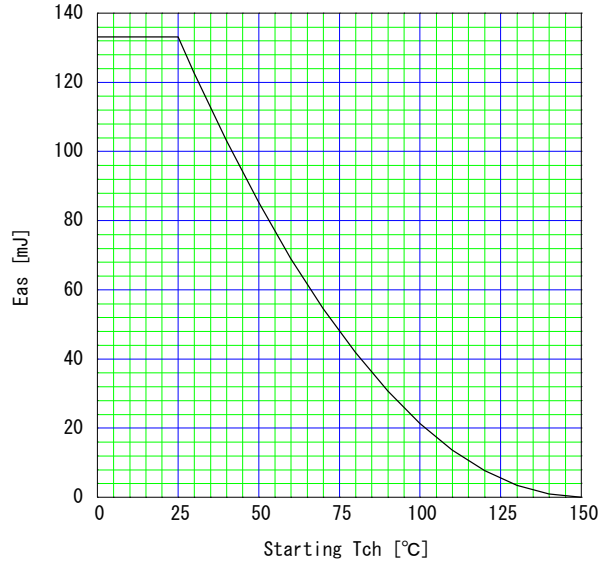
Typical capacitances
 $C = f(V_{DS}) : V_{GS} = 0V, f = 1MHz$



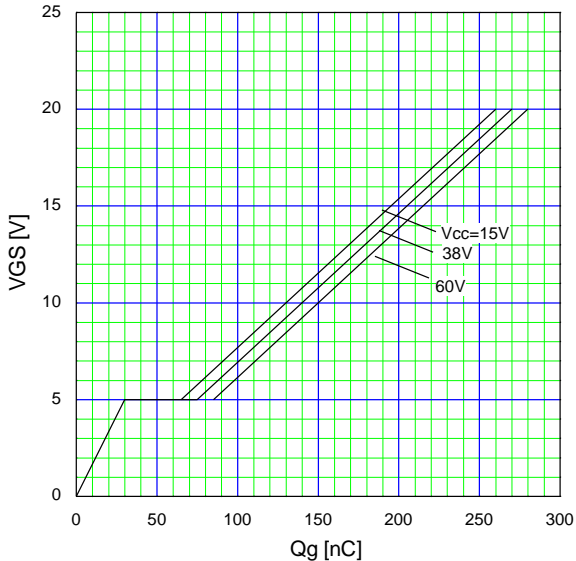
Maximum Avalanche Current vs. starting Tch
 $I_{(AV)} = f(\text{starting Tch})$, single pulse



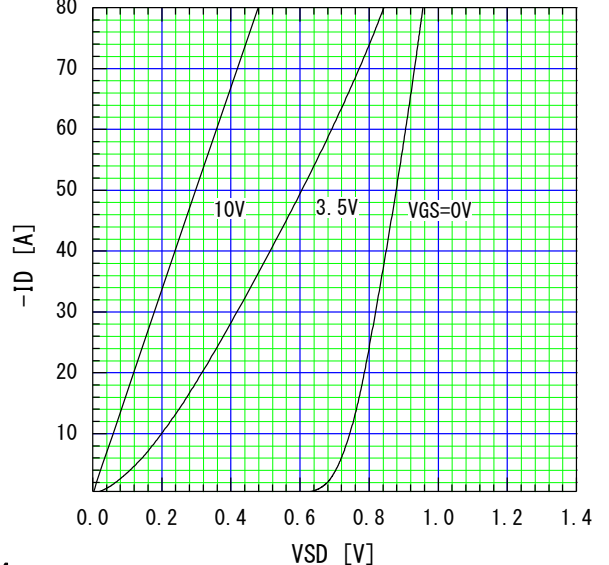
Maximum Avalanche energy vs. starting Tch
 $E_{as} = f(\text{starting Tch}) : V_{CC} = 48V, I_{AV} \le 70A$, single pulse



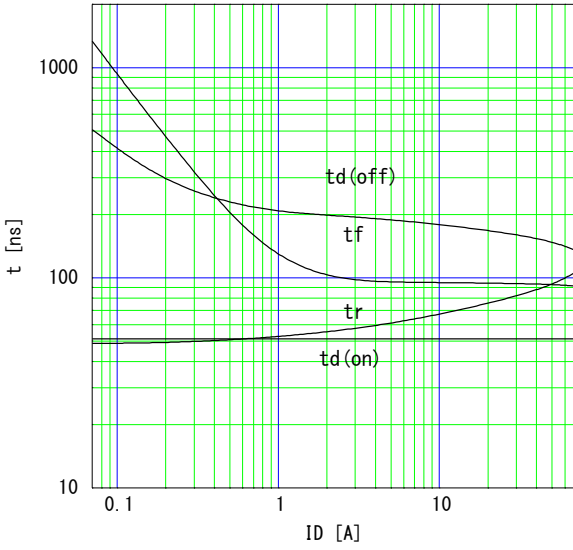
Typical Gate Charge Characteristics
 $V_{GS} = f(Q_g) : I_D = 70A, T_{ch} = 25^\circ C$



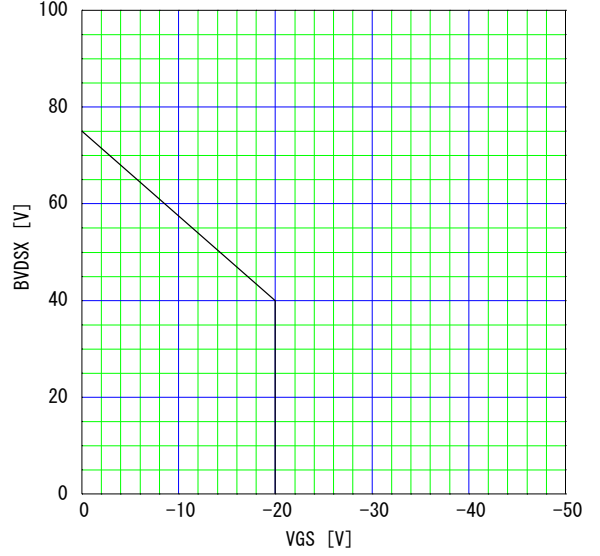
Typical Forward Characteristics of Reverse Diode
 $-I_D = f(V_{SD}) : 80 \mu s$ pulse test, $T_{ch} = 25^\circ C$



Typical Switching Characteristics vs. I_D
 $t=f(I_D)$: $V_{CC}=38V$, $V_{GS}=10V$, $R_G=10\Omega$



Drain-Source Breakdown Voltage vs. Vgs
 $BV_{DSX}=f(V_{GS})$: $T_{ch}=25^\circ C$



Transient Thermal Impedance

$Z_{th(ch-c)}=f(t):D=0$

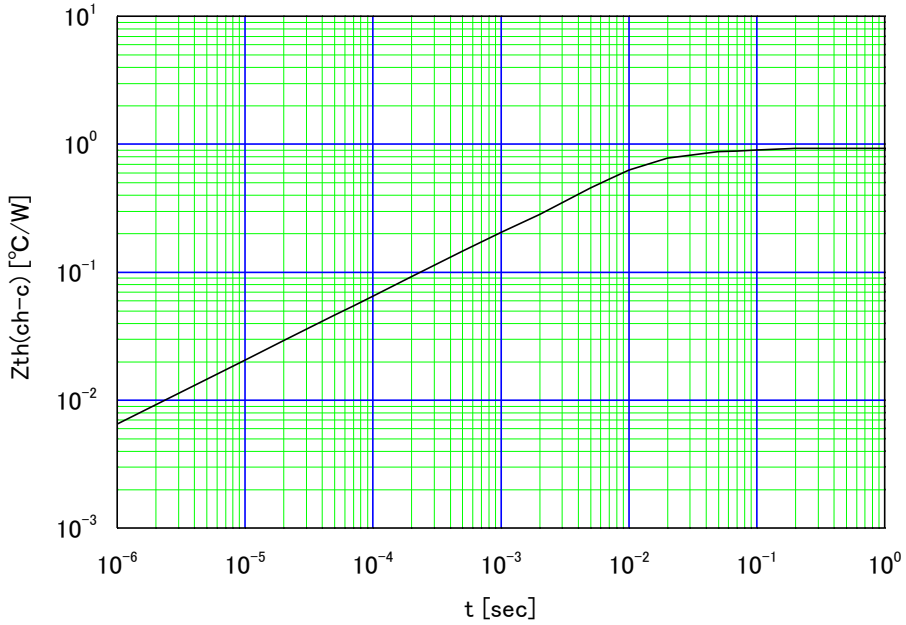


Fig.1 Avalanche Test circuit

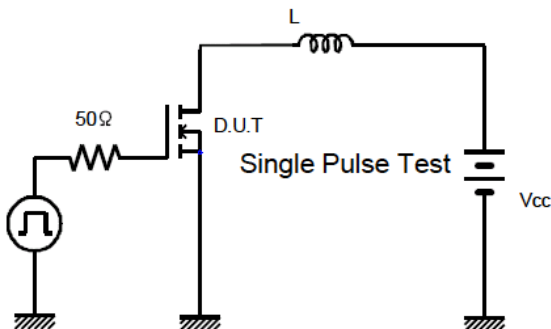


Fig.2 Operating waveforms of Avalanche Test

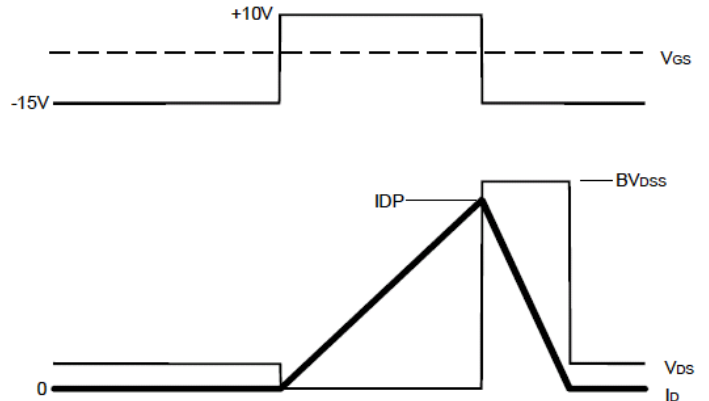


Fig.3 Switching Test circuit

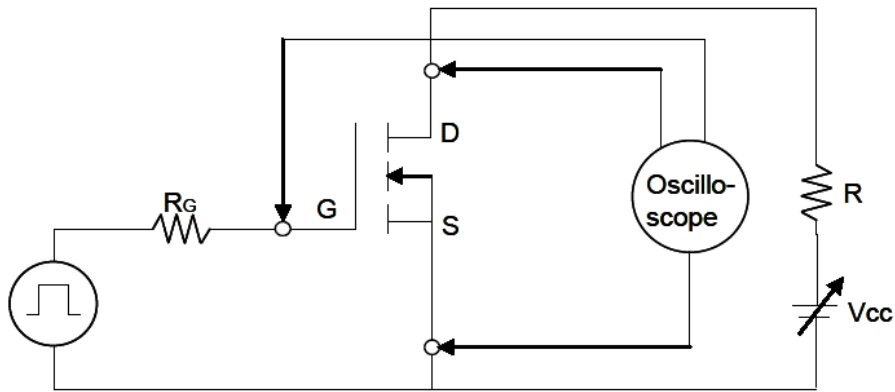


Fig.4 Operating waveform of Switching Test

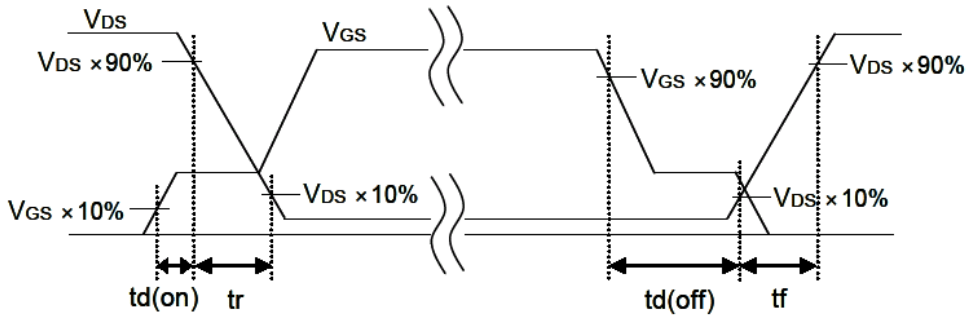


Fig.5 Operating waveform of Gate charge Test

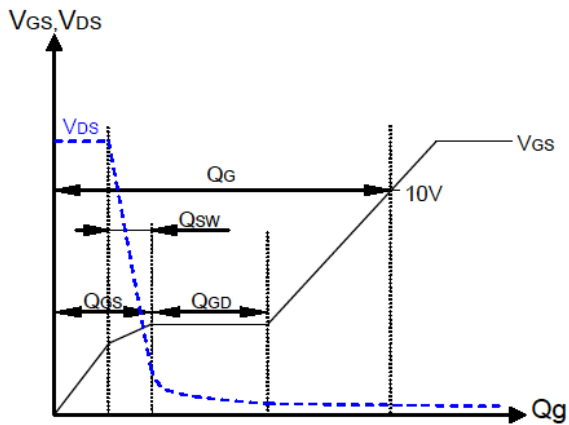


Fig.6 Operating waveform of Body diode Recovery Test

