

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 | — | |

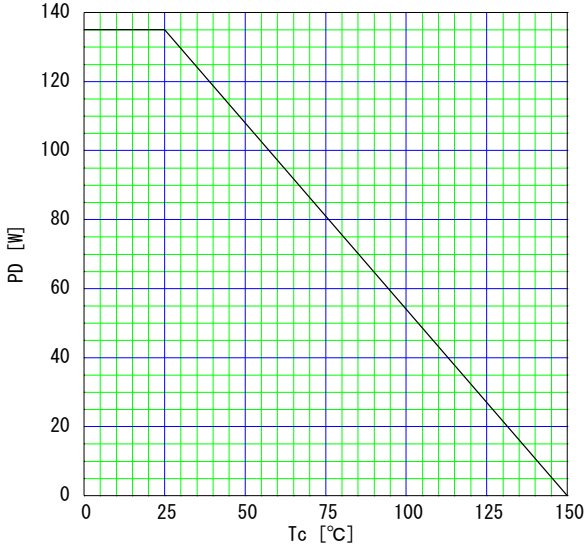
Reverse Ratings

| 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 |

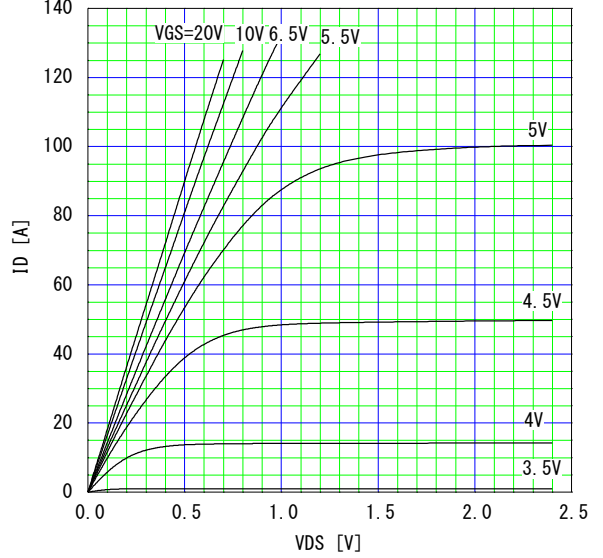
■ Thermal Characteristics

| 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 | $^\circ C/W$ |

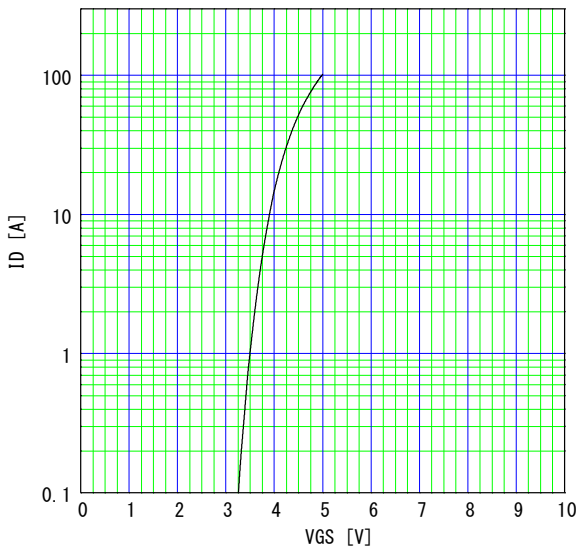
Power Dissipation
 $PD=f(T_c)$



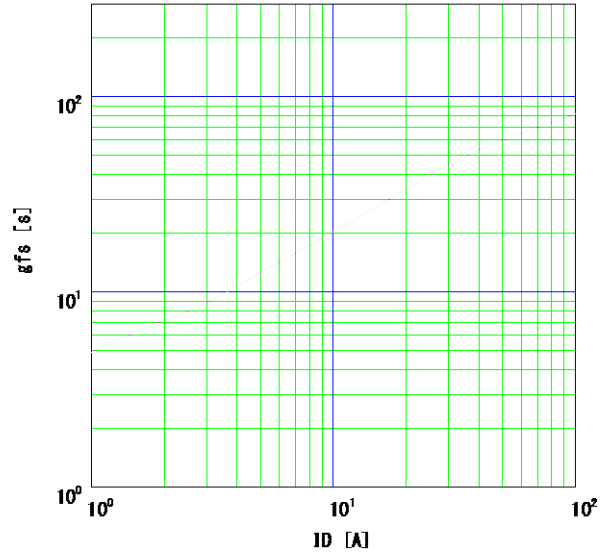
Typical output characteristics
 $ID=f(V_{DS})$: 80 μ s pulse test, $T_c=25^\circ\text{C}$



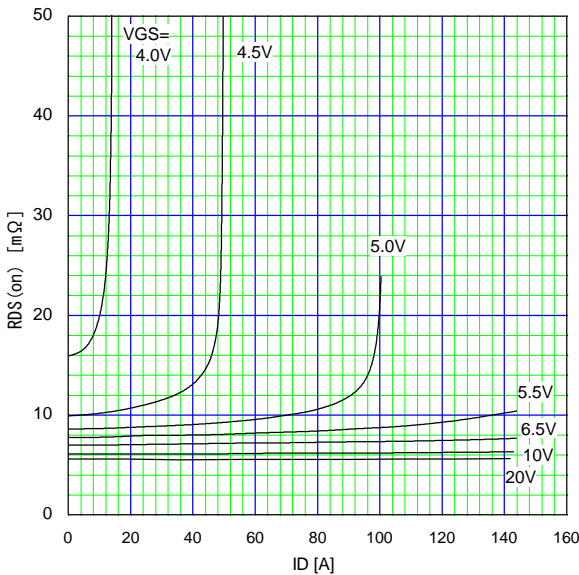
Typical transfer characteristics
 $ID=f(V_{GS})$: 80 μ s pulse test, $V_{DS}=10\text{V}$, $T_{ch}=25^\circ\text{C}$



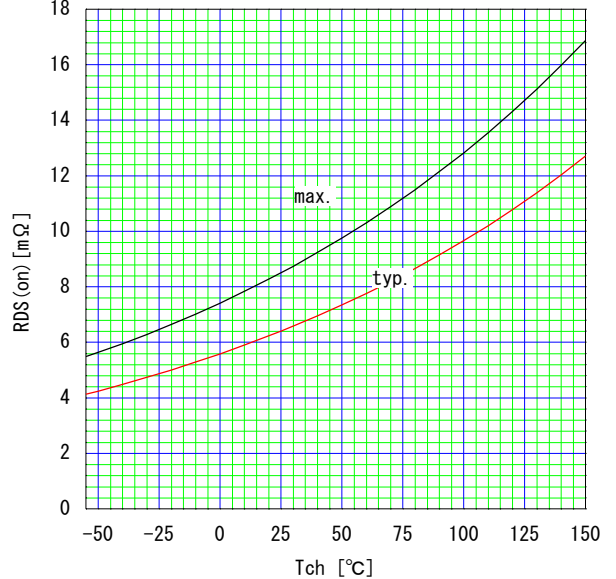
Typical forward transconductance
 $g_{fs}=f(ID)$: 80 μ s pulse test, $V_{DS}=10\text{V}$, $T_{ch}=25^\circ\text{C}$



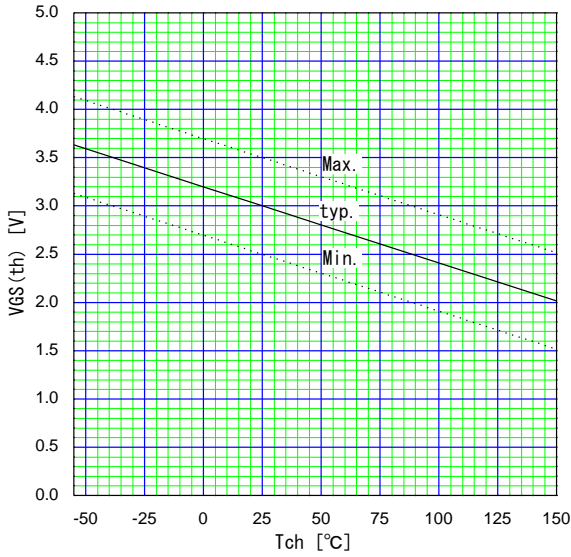
Typical Drain-Source on-State Resistance
 $R_{DS(on)}=f(ID)$: 80 μ s pulse test, $T_{ch}=25^\circ\text{C}$



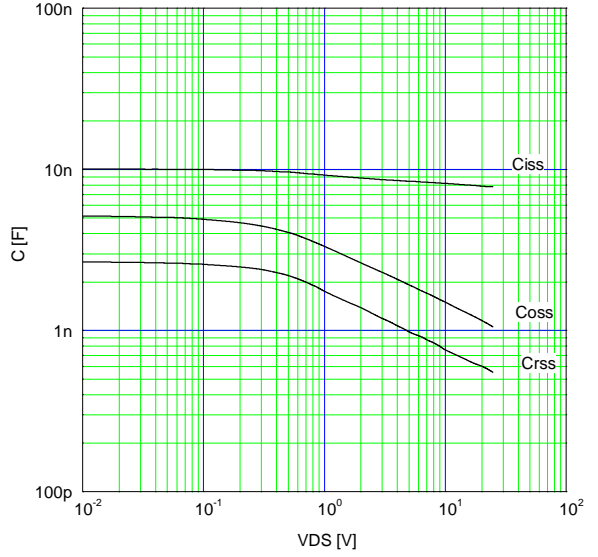
Drain-source on-state resistance
 $R_{DS(on)}=f(T_{ch})$: $ID=35\text{A}$, $V_{GS}=10\text{V}$



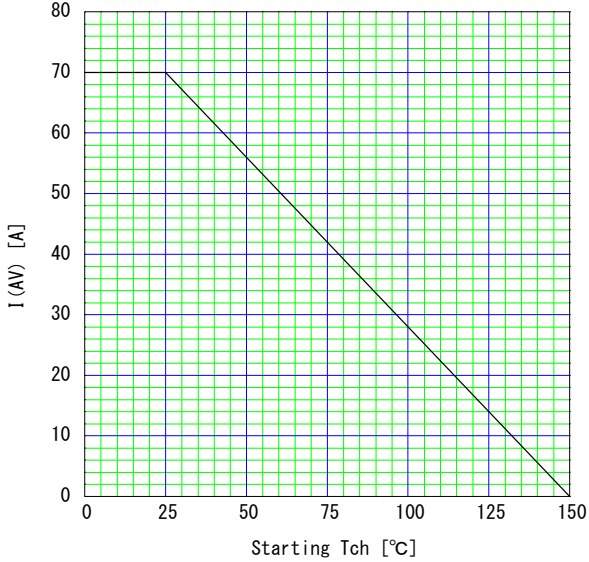
Gate Threshold Voltage vs. Tch
 $V_{GS(th)} = f(T_{ch}) : V_{DS} = V_{GS}, I_D = 10mA$



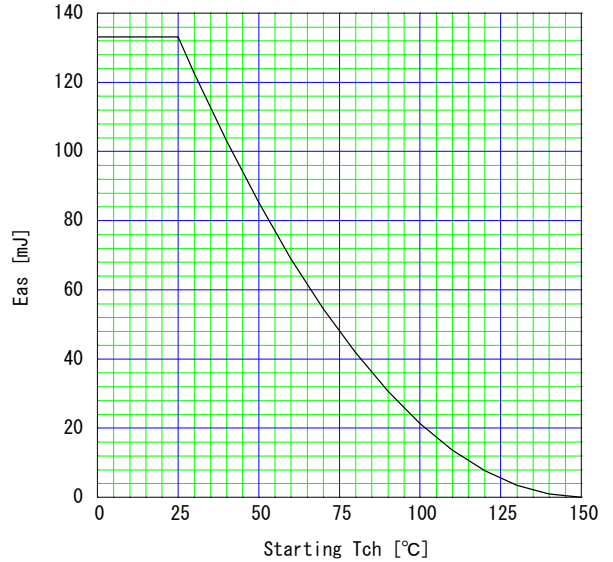
Typical capacitances
 $C = f(V_{DS}) : V_{GS} = 0V, f = 1MHz$



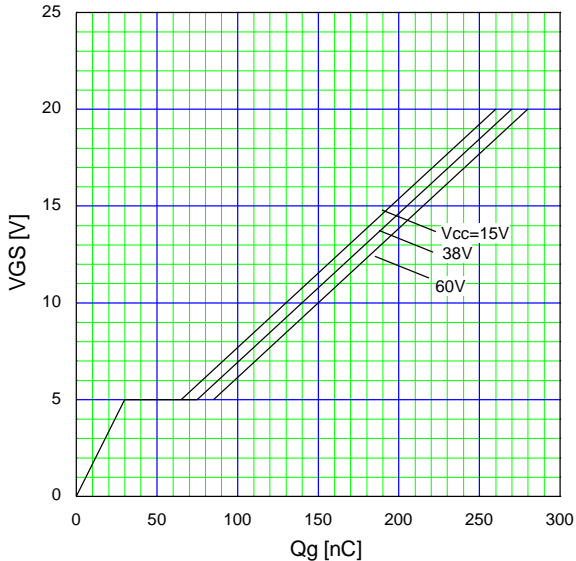
Maximum Avalanche Current vs. starting Tch
 $I_{(AV)} = f(\text{starting Tch})$, single pulse



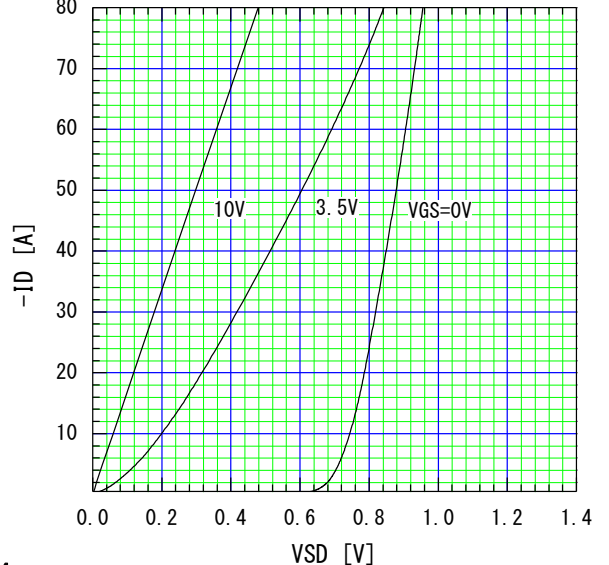
Maximum Avalanche energy vs. starting Tch
 $E_{as} = f(\text{starting Tch}) : V_{CC} = 48V, I_{AV} \leq 70A$, single pulse



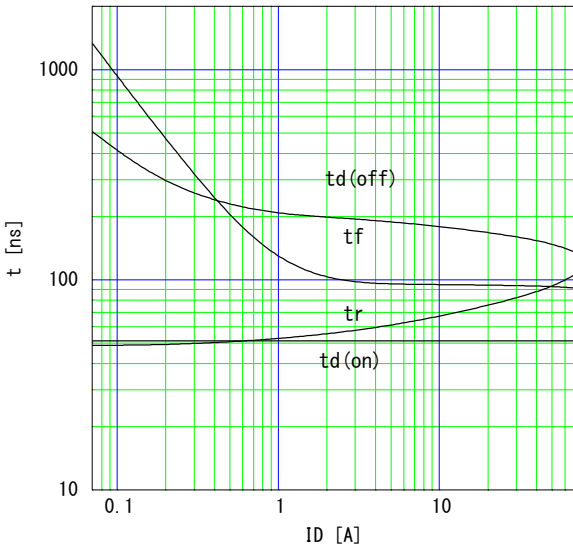
Typical Gate Charge Characteristics
 $V_{GS} = f(Q_g) : I_D = 70A, T_{ch} = 25^\circ C$



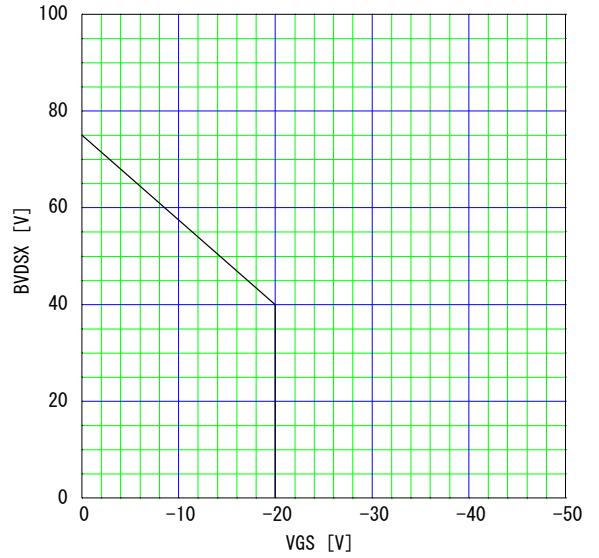
Typical Forward Characteristics of Reverse Diode
 $-I_D = f(V_{SD}) : 80 \mu s$ pulse test, $T_{ch} = 25^\circ C$



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

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

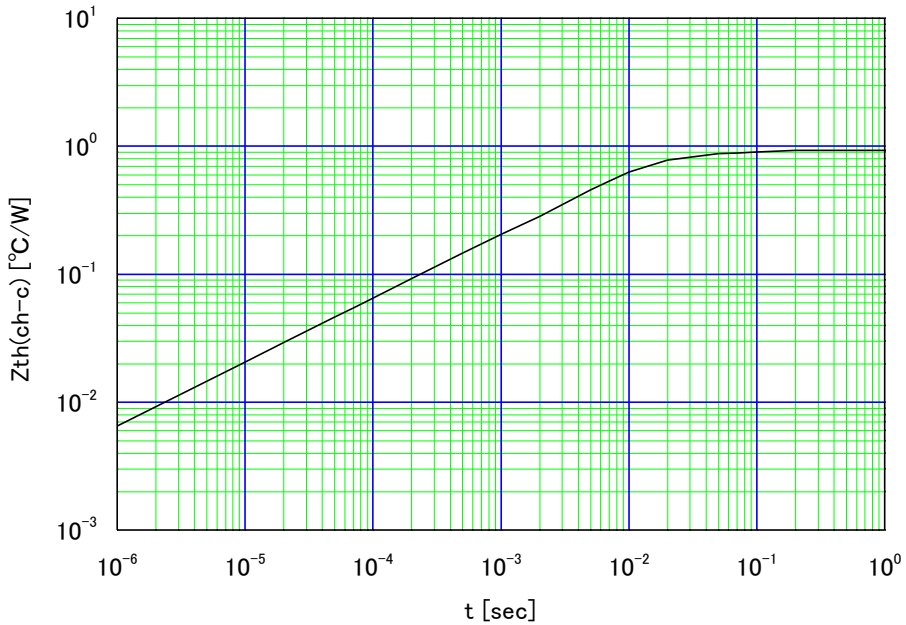


Fig.1 Avalanche Test circuit

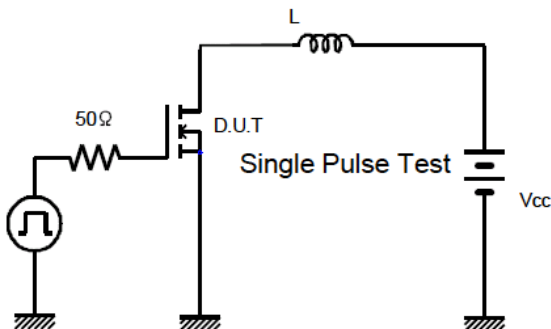


Fig.2 Operating waveforms of Avalanche Test

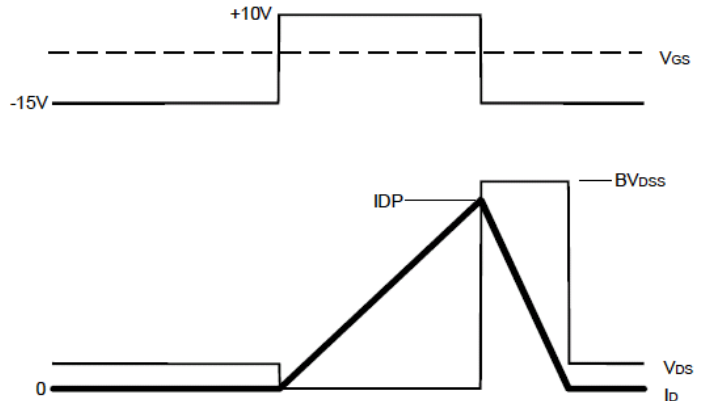


Fig.3 Switching Test circuit

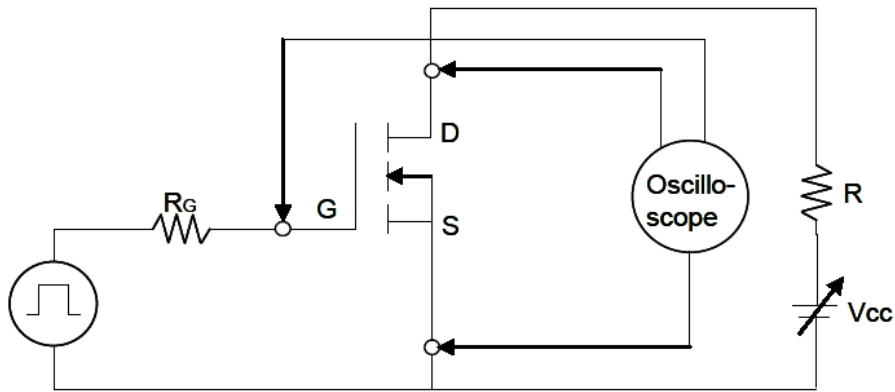


Fig.4 Operating waveform of Switching Test

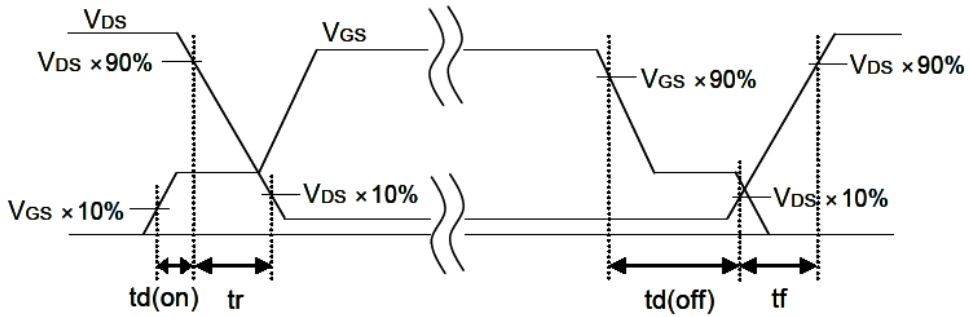


Fig.5 Operating waveform of Gate charge Test

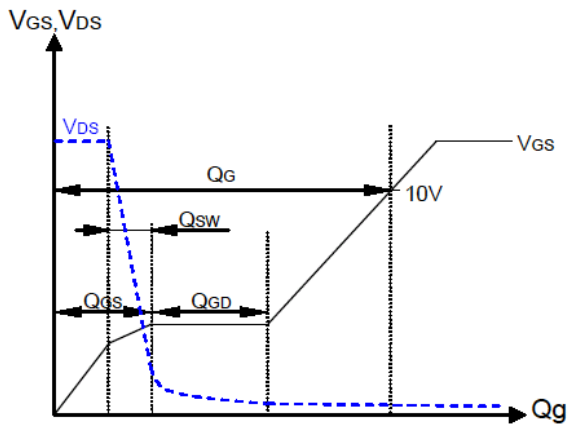


Fig.6 Operating waveform of Body diode Recovery Test

