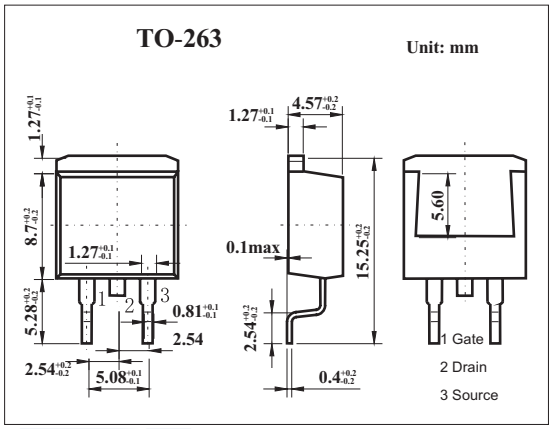
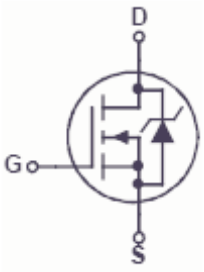
# N-Channel PowerTrench MOSFET
# KDB2532(FDB2532)




## Features

- $r_{DS(ON)}$ = 14mΩ (Typ.), $V_{GS}$ = 10V, $I_D$ = 33A
- $Q_{g(tot)}$ = 82nC (Typ.), $V_{GS}$ = 10V
- Low Miller Charge
- Low QRR Body Diode
- UIS Capability (Single Pulse and Repetitive Pulse)




## Absolute Maximum Ratings Ta = 25℃

| Parameter | Symbol | Rating | Unit |
|---|---|---|---|
| Drain to source voltage | $V_{DSS}$ | 150 | V |
| Gate to source voltage | $V_{GSS}$ | ±20 | V |
| Drain current-Continuous Tc=25℃ | $I_D$ | 79 | A |
| Ta=25℃ | | 8 | A |
| Power dissipation | $P_D$ | 310 | W |
| Derate above 25℃ | | 2.07 | W/℃ |
| Thermal Resistance Junction to Ambient | $R_{\theta JA}$ | 43 | ℃/W |
| Channel temperature | $T_{ch}$ | 175 | ℃ |
| Storage temperature | $T_{stg}$ | -55 to +175 | ℃ |

# KDB2532(FDB2532)

■ Electrical Characteristics Ta = 25℃

| Parameter | Symbol | Testconditons | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Drain to source breakdown voltage | $V_{DSS}$ | $I_D$=250μA，$V_{GS}$=0V | 150 | | | V |
| Drain cut-off current | $I_{DSS}$ | $V_{DS}$=120V,$V_{GS}$=0 | | | 1 | μA |
| | | $V_{DS}$=120V,$V_{GS}$=0,$T_C$=150℃ | | | 250 | |
| Gate leakage current | $I_{GSS}$ | $V_{GS}$=±20V | | | ±100 | nA |
| Gate threshold voltage | $V_{GS(th)}$ | $V_{DS}$ = $V_{GS}$, $I_D$ = 250μA | 2.0 | | 4.0 | V |
| Drain to source on-state resistance | $R_{DS(on)}$ | $V_{GS}$=10V,$I_D$=33A | | 0.014 | 0.016 | Ω |
| | | $V_{GS}$=6V,$I_D$=16A | | 0.016 | 0.024 | |
| | | $V_{GS}$=10V,$I_D$=33A,$T_C$=175℃ | | 0.040 | 0.048 | |
| Input capacitance | $C_{iss}$ | $V_{DS}$=25V,$V_{GS}$=0,f=1MHZ | | 5870 | | pF |
| Output capacitance | $C_{oss}$ | | | 615 | | pF |
| Reverse transfer capacitance | $C_{rss}$ | | | 135 | | pF |
| Total Gate Charge at 10V | $Q_{g(TOT)}$ | $V_{GS}$ = 0V to 10V | | 82 | 107 | nC |
| Threshold Gate Charge | $Q_{g(TH)}$ | $V_{GS}$ = 0V to 2V | | 11 | 14 | nC |
| Gate to Source Gate Charge | $Q_{gs}$ | $V_{DS}$ = 75V, | | 23 | | nC |
| Gate Charge Threshold to Plateau | $Q_{gs2}$ | $I_g$=1.0mA | | 13 | | nC |
| Gate to Drain "Miller" Charge | $Q_{gd}$ | $I_D$ = 33A | | 19 | | nC |
| Turn-On Time | $t_{ON}$ | $V_{DD}$ = 75V, $I_D$ = 33A<br>$V_{GS}$ = 10V, $R_{GS}$ = 3.6 Ω | | | 69 | ns |
| Turn-On Delay Time | $t_{d(ON)}$ | | | 16 | | ns |
| Rise Time | $t_r$ | | | 30 | | ns |
| Turn-Off Delay Time | $t_{d(OFF)}$ | | | 39 | | ns |
| Fall Time | $t_f$ | | | 17 | | ns |
| Turn-Off Time | $t_{OFF}$ | | | | 84 | ns |
| Reverse Recovery Time | $t_{rr}$ | $I_{SD}$ = 33A, $di_{SD}/dt$ = 100A/μs | | | 105 | ns |
| Reverse Recovered Charge | $Q_{RR}$ | $I_{SD}$ = 33A, $di_{SD}/dt$ = 100A/μs | | | 327 | nC |
| Source to Drain Diode Voltage | $V_{SD}$ | $I_{SD}$ = 33A | | | 1.25 | V |
| | | $I_{SD}$ = 16A | | | 1.0 | V |