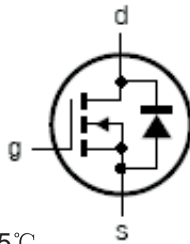
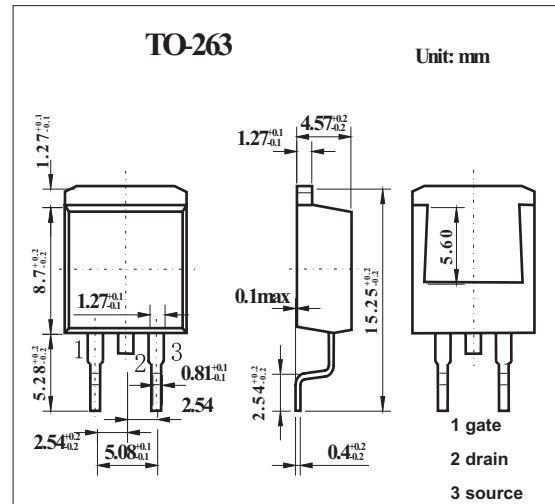


TrenchMOS™ standard level FET

KUK7606-55B

■ Features

- Very low on-state resistance
- Q101 compliant
- 175°C rated
- Standard level compatible.

■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

| Parameter | Symbol | Rating | Unit |
|---|----------------|------------|------------------|
| Drain-source voltage | V_{DS} | 55 | V |
| Drain-gate voltage $R_{GS} = 20\text{ K}\Omega$ | V_{DGR} | 55 | V |
| Gate-source voltage | V_{GS} | ± 20 | V |
| Drain current (DC) $T_{mb} = 25^\circ\text{C}, V_{GS} = 10\text{ V}$ | I_D | 145 | A |
| Drain current (DC) $T_{mb} = 100^\circ\text{C}, V_{GS} = 10\text{ V}$ | I_D | 75 | A |
| Drain current (pulse peak value) *1 | I_{DM} | 582 | A |
| Total power dissipation $T_{mb} = 25^\circ\text{C}$ | P_{tot} | 254 | W |
| Storage & operating temperature | T_{stg}, T_j | -55 to 175 | $^\circ\text{C}$ |
| reverse drain current (DC) $T_{mb} = 25^\circ\text{C}$ | I_{DR} | 145 | A |
| | | 75 | A |
| pulsed reverse drain current *1 | I_{DRM} | 582 | A |
| non-repetitive avalanche energy *2 | $E_{DS(AL)S}$ | 680 | J |
| Thermal resistance junction to mounting base | $R_{th\ j-mb}$ | 0.59 | K/W |
| Thermal resistance junction to ambient | $R_{th\ j-a}$ | 50 | K/W |

* 1 $T_{mb} = 25^\circ\text{C}$; pulsed; $t_p \leq 10\ \mu\text{s}$;

*2 unclamped inductive load; $I_D = 75\text{ A}$; $V_{DS} \leq 55\text{ V}$; $V_{GS} = 10\text{ V}$; $R_{GS} = 50\ \Omega$; starting $T_{mb} = 25^\circ\text{C}$

KUK7606-55B

■ Electrical Characteristics Ta = 25°C

| Parameter | Symbol | Testconditons | Min | Typ | Max | Unit |
|--------------------------------------|----------------------|--|-----|------|------|------|
| drain-source breakdown voltage | V _{(BR)DSS} | I _D = 0.25 mA; V _{GS} = 0 V; T _J = 25°C | 55 | | | V |
| | | I _D = 0.25 mA; V _{GS} = 0 V; T _J = -55°C | 50 | | | V |
| gate-source threshold voltage | V _{GS(th)} | I _D = 1 mA; V _{DS} = V _{GS} ; T _J = 25°C | 2 | 3 | 4 | V |
| | | I _D = 1 mA; V _{DS} = V _{GS} ; T _J = 175°C | 1 | | | V |
| | | I _D = 1 mA; V _{DS} = V _{GS} ; T _J = -55°C | | | 4.4 | V |
| Zero gate voltage drain current | I _{DSS} | V _{DS} = 30 V; V _{GS} = 0 V; T _J = 25°C | | 0.02 | 1 | μA |
| | | V _{DS} = 30 V; V _{GS} = 0 V; T _J = 175°C | | | 500 | μA |
| gate-source leakage current | I _{GSS} | V _{GS} = ±20 V; V _{DS} = 0 V | | 2 | 100 | nA |
| drain-source on-state resistance | R _{DS(on)} | V _{GS} = 10 V; I _D = 25 A; T _J = 25°C | | 5.1 | 6 | mΩ |
| | | V _{GS} = 10 V; I _D = 25 A; T _J = 175°C | | | 12 | mΩ |
| total gate charge | Q _{g(tot)} | | | 64 | | nC |
| gate-to-source charge | Q _{gs} | V _{GS} = 10 V; V _{DD} = 44 V; I _D = 25 A | | 14 | | nC |
| gate-to-drain (Miller) charge | Q _{gd} | | | 19 | | nC |
| input capacitance | C _{iss} | | | 3825 | 5100 | pF |
| output capacitance | C _{oss} | V _{GS} = 0 V; V _{DS} = 25 V; f = 1 MHz | | 783 | 940 | pF |
| reverse transfer capacitance | C _{rss} | | | 235 | 322 | pF |
| turn-on delay time | t _{d(on)} | | | 30 | | ns |
| rise time | t _r | V _{DD} = 30 V; R _L = 1.2Ω; V _{GS} = 10 V; R _G = 10 Ω | | 46 | | ns |
| turn-off delay time | t _{d(off)} | | | 85 | | ns |
| fall time | t _f | | | 39 | | ns |
| internal drain inductance | L _d | from drain lead 6 mm from package to centre of die | | 4.5 | | nH |
| | | | | 2.5 | | nH |
| internal source inductance | L _s | from source lead to source bond pad | | 7.5 | | nH |
| source-drain (diode forward) voltage | V _{SD} | I _S = 25 A; V _{GS} = 0 V | | 0.85 | 1.2 | V |
| reverse recovery time | t _{rr} | I _S = 20 A; -di _F /dt = -100 A/μs; | | 73 | | ns |
| recovered charge | Q _r | V _{GS} = -10 V; V _{DS} = 30 V | | 82 | | nC |