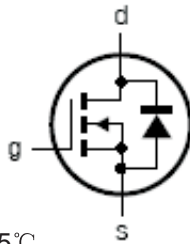
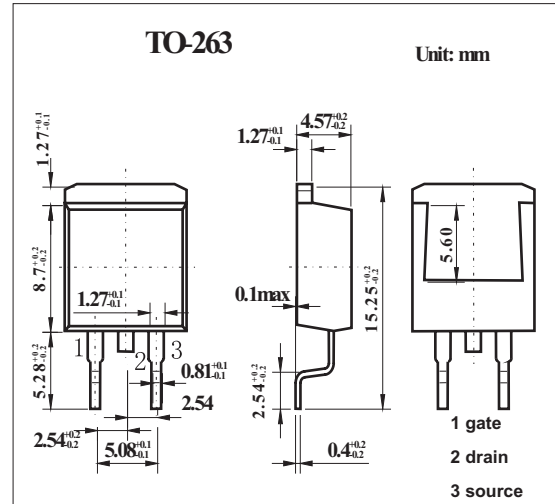


TrenchMOS™ standard level FET

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}	V _{GS} = 0 V; V _{DS} = 25 V; f = 1 MHz		3825	5100	pF
output capacitance	C _{oss}			783	940	pF
reverse transfer capacitance	C _{rss}			235	322	pF
turn-on delay time	t _{d(on)}	V _{DD} = 30 V; R _L = 1.2Ω; V _{GS} = 10 V; R _G = 10 Ω		30		ns
rise time	t _r			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; -diF/dt = -100 A/μs;		73		ns
recovered charge	Q _r	V _{GS} = -10 V; V _{DS} = 30 V		82		nC