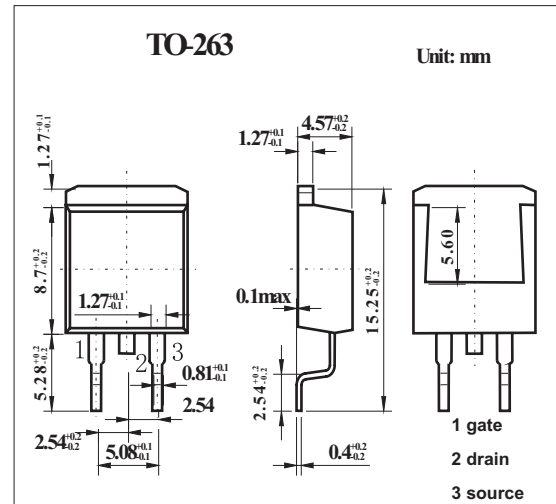
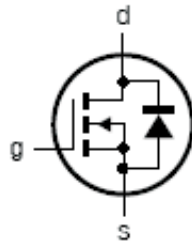


TrenchMOS™ standard level FET

KUK7604-40A

■ Features

- TrenchMOS™ technology
- Q101 compliant
- 175°C rated
- Standard level compatible.



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

Parameter	Symbol	Rating	Unit
drain-source voltage (DC)	V_{DS}	40	V
drain-gate voltage (DC) $R_{GS} = 20\text{ k}\Omega$	V_{DGR}	40	V
gate-source voltage (DC)	V_{GS}	± 20	V
drain current (DC) $T_{mb} = 25^\circ\text{C}$; $V_{GS} = 10\text{ V}$	I_D	198	A
drain current (DC) $T_{mb} = 100^\circ\text{C}$; $V_{GS} = 10\text{ V}$		75	A
peak drain current *1	I_{DM}	794	A
total power dissipation $T_{mb} = 25^\circ\text{C}$	P_{tot}	300	W
storage temperature	T_{stg}	-55 to 175	$^\circ\text{C}$
operating junction temperature	T_j	-55 to 175	$^\circ\text{C}$
reverse drain current (DC) $T_{mb} = 25^\circ\text{C}$	I_{DR}	198	A
		75	A
pulsed reverse drain current *2	I_{DRM}	794	A
non-repetitive avalanche energy	W_{DSS}	1.6	J
thermal resistance from junction to ambient	$R_{th(j-a)}$	50	K/W
thermal resistance from junction to mounting base	$R_{th(j-mb)}$	0.5	K/W

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

*2 unclamped inductive load; $I_D = 75\text{ A}$; $V_{DS} \leq 40\text{ V}$; $V_{GS} = 10\text{ V}$; $R_{GS} = 50\Omega$, starting $T_{mb} = 25^\circ\text{C}$

KUK7604-40A

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
drain-source breakdown voltage	V _{(BR)DSS}	I _D = 0.25 mA; V _{GS} = 0 V; T _J = 25°C	40			V
		I _D = 0.25 mA; V _{GS} = 0 V; T _J = -55°C	36			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
drain-source leakage current	I _{DSS}	V _{DS} = 40 V; V _{GS} = 0 V; T _J = 25°C		0.05	10	mA
		V _{DS} = 40 V; V _{GS} = 0 V; T _J = 175°C			500	mA
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		3.9	4.5	mΩ
		V _{GS} = 10 V; I _D = 25 A; T _J = 175°C			8.5	mΩ
total gate charge	Q _{g(tot)}			117		nC
gate-to-source charge	Q _{gs}	V _{GS} = 10 V; V _{DD} = 32 V; I _D = 25 A		19		nC
gate-to-drain (Miller) charge	Q _{gd}			50		nC
input capacitance	C _{iss}			4300	5730	pF
output capacitance	C _{oss}	V _{GS} = 0 V; V _{DS} = 25 V; f = 1 MHz		1400	1680	pF
reverse transfer capacitance	C _{rss}			800	1100	pF
turn-on delay time	t _{d(on)}			33		ns
rise time	t _r			110		ns
turn-off delay time	t _{d(off)}	V _{DD} = 30 V; R _L = 1.2Ω; V _{GS} = 10 V; R _G = 10Ω		151		ns
fall time	t _f			76		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 = 40 A; V _{GS} = 0 V;		0.85	1.2	V
reverse recovery time	t _{rr}	I _S = 20 A; di _s /dt = -100 A/μs		96		ns
recovered charge	Q _r	V _{GS} = -10 V; V _{DS} = 30 V		224		nC