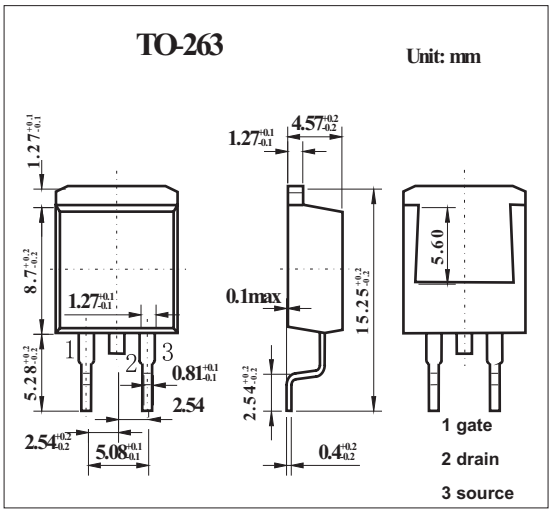
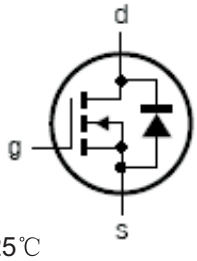
TrenchMOS™ standard level FET

KUK7607-30B



■ Features

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



■ Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	Rating	Unit
Drain-source voltage	V_{DS}	30	V
Drain-gate voltage R_{GS} = 20 KΩ	V_{DGR}	30	V
Gate-source voltage	V_{GS}	±20	V
Drain current (DC) T_{mb} = 25℃,V_{GS} = 10 V	I_D	108	A
Drain current (DC) T_{mb} = 100℃,V_{GS} = 10 V	I_D	75	A
Drain current (pulse peak value) *1	I_{DM}	435	A
Total power dissipation T_{mb} = 25℃	P_{tot}	157	W
Storage & operating temperature	T_{stg}, T_j	-55 to 175	℃
reverse drain current (DC) T_{mb} = 25℃	I_{DR}	108	A
		75	A
pulsed reverse drain current *1	I_{DRM}	435	A
non-repetitive avalanche energy *2	$E_{DS(AL)S}$	329	J
Thermal resistance junction to mounting base	$R_{th\ j\text{-}mb}$	0.95	K/W
Thermal resistance junction to ambient	$R_{th\ j\text{-}a}$	50	K/W

* 1 Tmb = 25℃; pulsed; tp ≤ 10 μs;

*2 unclamped inductive load; I_D = 75 A;V_{DS} ≤ 30 V; V_{GS} = 10 V; R_{GS} = 50Ω;starting T_{mb} = 25℃

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■ Electrical Characteristics Ta = 25℃

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℃	30			V
		I_D = 0.25 mA; V_{GS} = 0 V;T_j = -55℃	27			V
gate-source threshold voltage	$V_{GS(th)}$	I_D = 1 mA; V_{DS} = V_{GS};T_j = 25℃	2	3	4	V
		I_D = 1 mA; V_{DS} = V_{GS};T_j = 175℃	1			V
		I_D = 1 mA; V_{DS} = V_{GS};T_j = -55℃			4.4	V
Zero gate voltage drain current	I_{DSS}	V_{DS} = 30 V; V_{GS} = 0 V;T_j = 25℃		0.02	1	μA
		V_{DS} = 30 V; V_{GS} = 0 V;T_j = 175℃			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_{DSon}	V_{GS} = 10 V; I_D = 25 A;T_j = 25℃	..	5.9	7	mΩ
		V_{GS} = 10 V; I_D = 25 A;T_j = 175℃			13.3	mΩ
total gate charge	$Q_{g(tot)}$	V_{GS} = 10 V; V_{DD} = 24 V;I_D = 25 A		36		nC
gate-to-source charge	Q_{gs}			9		nC
gate-to-drain (Miller) charge	Q_{gd}			12		nC
input capacitance	C_{iss}	V_{GS} = 0 V; V_{DS} = 25 V;f = 1 MHz		1820	7446	pF
output capacitance	C_{oss}			632	1014	pF
reverse transfer capacitance	C_{rss}			256	360	pF
turn-on delay time	$t_{d(on)}$	V_{DD} = 25 V; R_L = 1.2Ω;V_{GS} = 10 V; R_G = 10Ω		20		ns
rise time	t_r			51		ns
turn-off delay time	$t_{d(off)}$			51		ns
fall time	t_f			44		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 = 40A; V_{GS} = 0 V		0.85	1.2	V
reverse recovery time	t_{rr}	I_S = 25 A; -dI_F/dt = -100 A/μs;		46		ns
recovered charge	Q_r	V_{GS} = -10 V; V_{DS} = 20 V		28		nC