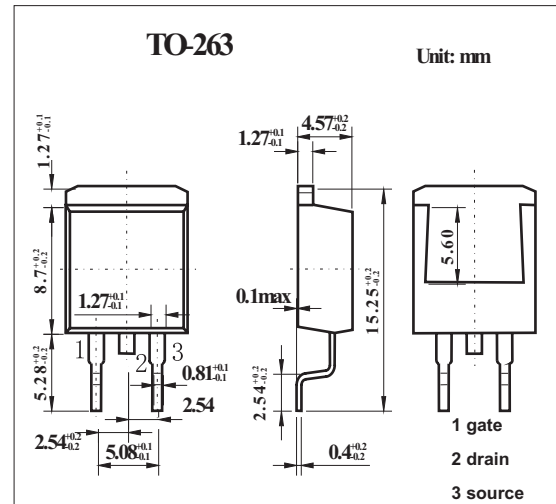
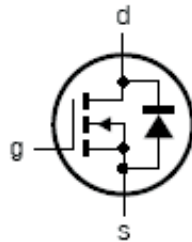


## TrenchMOS™ standard level FET

### KUK7607-55B

#### ■ 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	$V_{GS}$	$\pm 20$	V
Drain current (DC) $T_{mb} = 25^\circ\text{C}, V_{GS} = 10\text{ V}$	$I_D$	119	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	$I_{DM}$	478	A
Total power dissipation $T_{mb} = 25^\circ\text{C}$	$P_{tot}$	203	W
Storage & operating temperature	$T_{stg}, T_j$	-55 to 175	$^\circ\text{C}$
reverse drain current (DC) $T_{mb} = 25^\circ\text{C}$	$I_{DR}$	119	A
		75	A
pulsed reverse drain current *1	$I_{DRM}$	478	A
non-repetitive avalanche energy *2	$EDS(AL)S$	351	J
Thermal resistance junction to mounting base	$R_{th\ j-mb}$	0.74	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  $T_{mb} = 25^\circ\text{C}$

## KUK7607-55B

## ■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
drain-source breakdown voltage	$V_{(BR)DSS}$	$I_D = 0.25 \text{ mA}; V_{GS} = 0 \text{ V}; T_j = 25^\circ\text{C}$	55			V
		$I_D = 0.25 \text{ mA}; V_{GS} = 0 \text{ V}; T_j = -55^\circ\text{C}$	50			V
gate-source threshold voltage	$V_{GS(th)}$	$I_D = 1 \text{ mA}; V_{DS} = V_{GS}; T_j = 25^\circ\text{C}$	2	3	4	V
		$I_D = 1 \text{ mA}; V_{DS} = V_{GS}; T_j = 175^\circ\text{C}$	1			V
		$I_D = 1 \text{ mA}; V_{DS} = V_{GS}; T_j = -55^\circ\text{C}$			4.4	V
Zero gate voltage drain current	$I_{DSS}$	$V_{DS} = 55 \text{ V}; V_{GS} = 0 \text{ V}; T_j = 25^\circ\text{C}$		0.02	1	$\mu\text{A}$
		$V_{DS} = 55 \text{ V}; V_{GS} = 0 \text{ V}; T_j = 175^\circ\text{C}$			500	$\mu\text{A}$
gate-source leakage current	$I_{GSS}$	$V_{GS} = \pm 20 \text{ V}; V_{DS} = 0 \text{ V}$		2	100	nA
drain-source on-state resistance	$R_{DS(on)}$	$V_{GS} = 10 \text{ V}; I_D = 25 \text{ A}; T_j = 25^\circ\text{C}$		5.8	7.1	m $\Omega$
		$V_{GS} = 10 \text{ V}; I_D = 25 \text{ A}; T_j = 175^\circ\text{C}$			14.2	m $\Omega$
total gate charge	$Q_{g(tot)}$	$V_{GS} = 10 \text{ V}; V_{DD} = 44 \text{ V}; I_D = 25 \text{ A}$		53		nC
gate-to-source charge	$Q_{gs}$			12		nC
gate-to-drain (Miller) charge	$Q_{gd}$			17		nC
input capacitance	$C_{iss}$	$V_{GS} = 0 \text{ V}; V_{DS} = 25 \text{ V}; f = 1 \text{ MHz}$		2820	3760	pF
output capacitance	$C_{oss}$			554	665	pF
reverse transfer capacitance	$C_{rss}$			200	274	pF
turn-on delay time	$t_{d(on)}$	$V_{DD} = 30 \text{ V}; R_L = 1.2\Omega; V_{GS} = 10 \text{ V}; R_G = 10\Omega$		24		ns
rise time	$t_r$			52		ns
turn-off delay time	$t_{d(off)}$			77		ns
fall time	$t_f$			41		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	$V_{SD}$	$I_s = 40\text{A}; V_{GS} = 0 \text{ V}$		0.85	1.2	V
reverse recovery time	$t_{rr}$	$I_s = 25 \text{ A}; -di_F/dt = -100 \text{ A}/\mu\text{s};$		62		ns
recovered charge	$Q_r$	$V_{GS} = -10 \text{ V}; V_{DS} = 30 \text{ V}$		60		nC