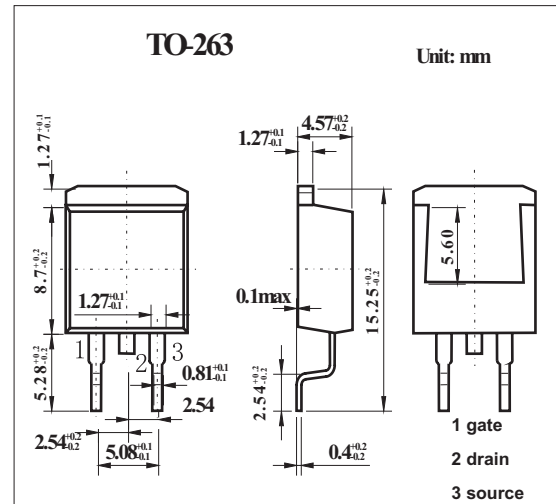
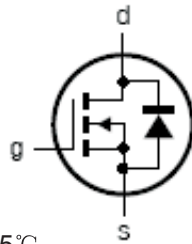


## TrenchMOS™ standard level FET

### KUK7606-55A

#### ■ 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	$V_{DS}$	30	V
Drain-gate voltage $R_{GS} = 20\text{ K}\Omega$	$V_{DGR}$	30	V
Gate-source voltage	$V_{GS}$	20	V
Drain current (DC) $T_{mb} = 25^\circ\text{C}$	$I_D$	75	A
Drain current (DC) $T_{mb} = 100^\circ\text{C}$	$I_D$	75	A
Drain current (pulse peak value) $T_{mb} = 25^\circ\text{C}$	$I_{DM}$	400	A
Total power dissipation $T_{mb} = 25^\circ\text{C}$	$P_{tot}$	230	W
Storage & operating temperature	$T_{stg}, T_j$	-55 to 175	$^\circ\text{C}$
reverse drain current (DC) $T_{mb} = 25^\circ\text{C}$	$I_{DR}$	154	A
		75	A
pulsed reverse drain current	$I_{DRM}$	616	A
non-repetitive avalanche energy	$W_{DSS}$	1.1	J
Thermal resistance junction to mounting base	$R_{th\ j-mb}$	0.65	K/W
Thermal resistance junction to ambient	$R_{th\ j-a}$	50	K/W

## KUK7606-55A

## ■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
drain-source breakdown voltage	V <sub>(BR)DSS</sub>	I <sub>D</sub> = 0.25 mA; V <sub>GS</sub> = 0 V; T <sub>J</sub> = 25°C	30			V
		I <sub>D</sub> = 0.25 mA; V <sub>GS</sub> = 0 V; T <sub>J</sub> = -55°C	27			V
gate-source threshold voltage	V <sub>GS(th)</sub>	I <sub>D</sub> = 1 mA; V <sub>DS</sub> = V <sub>GS</sub> ; T <sub>J</sub> = 25°C	2	3	4	V
		I <sub>D</sub> = 1 mA; V <sub>DS</sub> = V <sub>GS</sub> ; T <sub>J</sub> = 175°C	1			V
		I <sub>D</sub> = 1 mA; V <sub>DS</sub> = V <sub>GS</sub> ; T <sub>J</sub> = -55°C			4.4	V
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> = 30 V; V <sub>GS</sub> = 0 V; T <sub>J</sub> = 25°C		0.05	10	μA
		V <sub>DS</sub> = 30 V; V <sub>GS</sub> = 0 V; T <sub>J</sub> = 175°C			500	μA
gate-source leakage current	I <sub>GSS</sub>	V <sub>GS</sub> = ±20 V; V <sub>DS</sub> = 0 V		2	100	nA
drain-source on-state resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> = 10 V; I <sub>D</sub> = 25 A; T <sub>J</sub> = 25°C		4.3	5	mΩ
		V <sub>GS</sub> = 10 V; I <sub>D</sub> = 25 A; T <sub>J</sub> = 175°C			9.3	mΩ
input capacitance	C <sub>iss</sub>	V <sub>GS</sub> = 0 V; V <sub>DS</sub> = 25 V; f = 1 MHz		4500	6000	pF
output capacitance	C <sub>oss</sub>			1500	1800	pF
reverse transfer capacitance	C <sub>rss</sub>			960	1300	pF
turn-on delay time	t <sub>d(on)</sub>		V <sub>DD</sub> = 30 V; R <sub>L</sub> = 1.2Ω; V <sub>GS</sub> = 10 V; R <sub>G</sub> = 10Ω		35	55
rise time	t <sub>r</sub>			130	200	ns
turn-off delay time	t <sub>d(off)</sub>			155	230	ns
fall time	t <sub>f</sub>			150	220	ns
internal drain inductance	L <sub>d</sub>	from drain lead 6 mm from package to centre of die		2.5		nH
internal source inductance	L <sub>s</sub>	Measured from source lead soldering point to source bond pad		7.5		nH
Continuous reverse drain current	I <sub>DR</sub>				75	A
Pulsed reverse drain current	I <sub>DRM</sub>				240	A
source-drain (diode forward) voltage	V <sub>SD</sub>	I <sub>F</sub> = 25 A; V <sub>GS</sub> = 0 V		0.85	1.2	V
		I = 75 A; V = 0 V		1.1		V
reverse recovery time	t <sub>rr</sub>	I <sub>S</sub> = 75 A; -di <sub>F</sub> /dt = 100 A/μs;		400		ns
recovered charge	Q <sub>r</sub>	V <sub>GS</sub> = -10 V; V <sub>DS</sub> = 30 V		1.0		μC
Drain-source non-repetitive unclamped inductive turn-off energy	W <sub>DSS</sub>	I <sub>D</sub> = 75 A; V <sub>DD</sub> ≤ 25 V; V <sub>GS</sub> = 10 V; R <sub>GS</sub> = 50 Ω; T <sub>mb</sub> = 25 °C			500	mJ