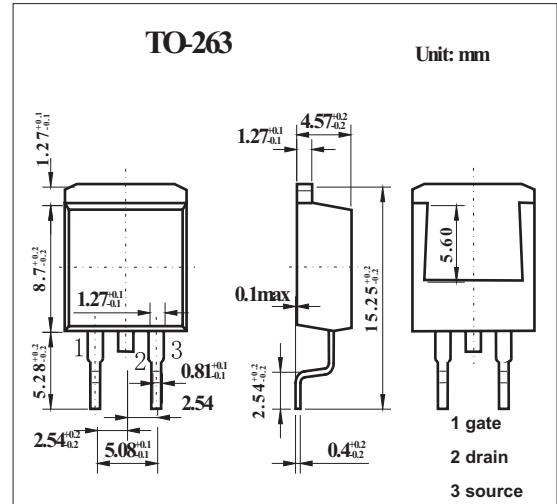


KUK7109-75AIE

■ Features

- Integrated temperature sensor
- Electrostatic discharge protection
- Q101 compliant
- Standard level compatible.



■ Absolute Maximum Ratings Ta = 25°C

Parameter	Symbol	Rating	Unit
Drain-source voltage	V _{DS}	75	V
Drain-gate voltage	V _{DGR}	75	V
Gate-source voltage	V _{GS}	±20	V
Drain current (DC) T _{mb} = 25°C, V _{GS} = 10 V	I _D	120	A
Drain current (DC) T _{mb} = 100°C, V _{GS} = 10 V	I _D	75	A
Drain current (pulse peak value) *1	I _{DM}	480	A
Total power dissipation T _{mb} = 25°C	P _{tot}	272	W
gate-source clamping current (continuous)	I _{GS(CL)}	10	mA
gate-source clamping current *3		50	mA
Storage & operating temperature	T _{stg} , T _j	-55 to 175	°C
reverse drain current (DC) T _{mb} = 25°C	I _{DR}	120	A
		75	A
pulsed reverse drain current *1	I _{DRM}	480	A
non-repetitive avalanche energy *2	E _{DS(AL)S}	739	J
electrostatic discharge voltage; all pins *4	V _{esd}	6	KV
Thermal resistance junction to mounting base	R _{th j-mb}	0.55	K/W
Thermal resistance junction to ambient	R _{th j-a}	50	K/W

* 1 T_{mb} = 25°C; pulsed; t_p ≤ 10 μs;

*2 unclamped inductive load; I_D = 75 A; V_{DS} ≤ 75 V; V_{GS} = 10 V; R_{GS} = 50Ω; starting T_j = 25°C

*3 t_p = 5 ms; δ = 0.01

*4 Human Body Model; C = 100 pF; R = 1.5 KΩ

KUK7109-75AIE

■ 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	75			V
		I _D = 0.25 mA; V _{GS} = 0 V; T _j = -55°C	70			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} = 75 V; V _{GS} = 0 V; T _j = 25°C		0.1	10	μA
		V _{DS} = 75 V; V _{GS} = 0 V; T _j = 175°C			250	μA
gate-source breakdown voltage	V _{(BR)GSS}	I _G = ±1 mA; -55°C < T _j < 175°C	20	22		
gate-source leakage current	I _{GSS}	V _{GS} = ±10 V; V _{DS} = 0 V; T _j = 25°C		22	1000	nA
		V _{GS} = ±10 V; V _{DS} = 0 V; T _j = 175°C			10	μA
drain-source on-state resistance	R _{DS(on)}	V _{GS} = 10 V; I _D = 50 A; T _j = 25°C		8	9	mΩ
		V _{GS} = 10 V; I _D = 50 A; T _j = 175°C			19	mΩ
ratio of drain current to sense current	I _D /I _{sense}	V _{GS} > 10 V; -55°C < T _j < 175°C	450	500	550	
total gate charge	Q _{g(tot)}	V _{GS} = 10 V; V _{DD} = 60 V; I _D = 25 A		121		nC
gate-to-source charge	Q _{gs}			20		nC
gate-to-drain (Miller) charge	Q _{gd}			44		nC
input capacitance	C _{iss}			4700		pF
output capacitance	C _{oss}	V _{GS} = 0 V; V _{DS} = 25 V; f = 1 MHz		800		pF
reverse transfer capacitance	C _{rss}			455		pF
turn-on delay time	t _{d(on)}			35		ns
rise time	t _r	V _{DD} = 30 V; R _L = 1.2Ω; V _{GS} = 10 V; R _G = 10Ω		108		ns
turn-off delay time	t _{d(off)}			185		ns
fall time	t _f			100		ns
internal drain inductance	L _d		measured from upper edge of drain mounting base to center of die		2.5	
internal source inductance	L _s	measured from source lead to source bond pad		7.5		nH
source-drain (diode forward) voltage	V _{SD}	I _s = 25A; V _{GS} = 0 V		0.85	1.2	V
reverse recovery time	t _{rr}	I _s = 20 A; -diF/dt = -100 A/μs;		75		ns
recovered charge	Q _r	V _{GS} = -10 V; V _{DS} = 30 V		270		nC