

Type	Pol	Struct	Pd	Vds	Vgs	Vgs(th)	Id	Tj	Qg	Tr	Cd	Rds	Caps
2SK3069	N	MOSFET	100	60	20		75	150	125	300	1000	0.012	TO220AB
IRF1010A	N	MOSFET	140	60	20	4	84	175	58	90	420	0.0085	TO220AB
IRF1010EZ	N	MOSFET	140	60	20	4	84	175	58			0.0085	TO220AB
IRF1010EZPBF	N	MOSFET	140	60	20	4	75	175	58	90	420	0.0085	TO220AB

Maximum Power Dissipation (Pd) – it is necessary to be sure that the chosen transistor can dissipate enough power. This parameter depends on the maximum transistor operating temperature – if the temperature increases, the maximum dissipation power decreases. If the maximum dissipation power is not enough – some transistor features become worse. For example, Rds resistance can double as the temperature increases from 25 ° C to 125 ° C.

Drain-Source Breakdown Voltage (Vds) – is the maximum drain-source voltage that does not cause avalanche breakdown at 25 ° C. It depends on the temperature: the voltage decreases if the transistor temperature decreases too. For example, at -50 ° C, a voltage that does not cause avalanche breakdown may be 90% of Vds at 25 ° C. The maximum accessible drain-source voltage (Vgs) – when a more accessible voltage is applied on a gate, damage to the isolating gate oxide layer is possible (it may also be static electricity). You should not use transistors with a large redundancy of Vds and Vgs voltages, because usually they have the worst speed features.

Gate Threshold Voltage Vgs(th) - if the voltage on the gate is higher than Vgs(th), MOSFET-transistor begins to conduct current through the drain-source channel. Vgs (th) has a negative temperature coefficient: if the temperature increases, the MOSFET transistor begins to open at a lower gate-source voltage.

Continuous Drain Current (Id) – you should bear in mind that some outputs from a transistor body limit the maximum accessible direct drain current (switching current can be greater). If the temperature increases, the maximum accessible current decreases.

Maximum Junction Temperature (Tj) - this parameter limits the temperature of the transistor channel in the enabled state. If it is exceeded, the service life of the transistor may be reduced.

Rise Time (tr) - the time for which the drain current increases from 10% to 90% of the specified.

Drain-Source On-state Resistance (Rds) is the resistance of an open drain-source channel for established parameters: Id, Vgs and Tj.