MS1307

N-channel power MOS FET transistor
commonly used in RF applications
around 26-30 MHz. TO220 package.

The exact specification is unknown but should be equivalent and very close to the following:

Absolute Maximum Ratings

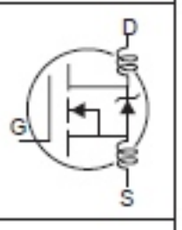
	Parameter	Max.	Units
I_D @ T_C = 25°C	Continuous Drain Current, V_{GS} @ 10V	9.7	A
I_D @ T_C = 100°C	Continuous Drain Current, V_{GS} @ 10V	6.8	
I_{DM}	Pulsed Drain Current	38	
P_D @T_C = 25°C	Power Dissipation	48	W
	Linear Derating Factor	0.32	W/°C
V_{GS}	Gate-to-Source Voltage	± 20	V
E_{AS}	Single Pulse Avalanche Energy	91	mJ
I_{AR}	Avalanche Current	5.7	A
E_{AR}	Repetitive Avalanche Energy	4.8	mJ
dv/dt	Peak Diode Recovery dv/dt	5.0	V/ns
T_J T_{STG}	Operating Junction and Storage Temperature Range	-55 to + 175	°C
	Soldering Temperature, for 10 seconds	300 (1.6mm from case)	
	Mounting torque, 6-32 or M3 srew	10 lbf•in (1.1N•m)	

Thermal Resistance

	Parameter	Typ.	Max.	Units
$R_{\theta JC}$	Junction-to-Case	—	3.1	°C/W
$R_{\theta CS}$	Case-to-Sink, Flat, Greased Surface	0.50	—	
$R_{\theta JA}$	Junction-to-Ambient	—	62	

Electrical Characteristics @ T_J = 25°C (unless otherwise specified)

	Parameter	Min.	Typ.	Max.	Units	Conditions
$V_{(BR)DSS}$	Drain-to-Source Breakdown Voltage	100	—	—	V	V_{GS} = 0V, I_D = 250µA
$\Delta V_{(BR)DSS}/\Delta T_J$	Breakdown Voltage Temp. Coefficient	—	0.11	—	V/°C	Reference to 25°C, I_D = 1mA
$R_{DS(on)}$	Static Drain-to-Source On-Resistance	—	—	0.20	Ω	V_{GS} = 10V, I_D = 5.7A
$V_{GS(th)}$	Gate Threshold Voltage	2.0	—	4.0	V	V_{DS} = V_{GS}, I_D = 250µA
g_{fs}	Forward Transconductance	2.7	—	—	S	V_{DS} = 50V, I_D = 5.7A
I_{DSS}	Drain-to-Source Leakage Current	—	—	25	µA	V_{DS} = 100V, V_{GS} = 0V
		—	—	250		V_{DS} = 80V, V_{GS} = 0V, T_J = 150°C
I_{GSS}	Gate-to-Source Forward Leakage	—	—	100	nA	V_{GS} = 20V
	Gate-to-Source Reverse Leakage	—	—	-100		V_{GS} = -20V
Q_g	Total Gate Charge	—	—	25	nC	I_D = 5.7A
Q_{gs}	Gate-to-Source Charge	—	—	4.8		V_{DS} = 80V
Q_{gd}	Gate-to-Drain ("Miller") Charge	—	—	11		V_{GS} = 10V
$t_{d(on)}$	Turn-On Delay Time	—	4.5	—	ns	V_{DD} = 50V
t_r	Rise Time	—	23	—		I_D = 5.7A
$t_{d(off)}$	Turn-Off Delay Time	—	32	—		R_G = 22Ω
t_f	Fall Time	—	23	—		R_D = 8.6Ω
L_D	Internal Drain Inductance	—	4.5	—	nH	Between lead, 6mm (0.25in.) from package and center of die contact
L_S	Internal Source Inductance	—	7.5	—		
C_{iss}	Input Capacitance	—	330	—	pF	V_{GS} = 0V
C_{oss}	Output Capacitance	—	92	—		V_{DS} = 25V
C_{rss}	Reverse Transfer Capacitance	—	54	—		f = 1.0MHz



Source-Drain Ratings and Characteristics

	Parameter	Min.	Typ.	Max.	Units	Conditions
I_S	Continuous Source Current (Body Diode)	—	—	9.7	A	MOSFET symbol showing the integral reverse p-n junction diode.
I_{SM}	Pulsed Source Current (Body Diode)	—	—	38		
V_{SD}	Diode Forward Voltage	—	—	1.3	V	T_J = 25°C, I_S = 5.7A, V_{GS} = 0V
t_{rr}	Reverse Recovery Time	—	99	150	ns	T_J = 25°C, I_F = 5.7A
Q_{rr}	Reverse RecoveryCharge	—	390	580	nC	di/dt = 100A/µs