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IRFM250

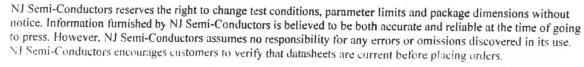
POWER MOSFET THRU-HOLE (TO-254AA)

Features:

- Simple Drive Requirements
- Ease of Paralleling
- Hermetically Sealed
- Electrically Isolated
- Dynamic dv/dt Rating
- Light-weight

Absolute Maximum Ratings

Parameter			Units	
ID @ VGS = 10V, TC = 25°C	Continuous Drain Current	27.4		
ID @ VGS = 10V, TC = 100°C	Continuous Drain Current	17	Α	
IDM	Pulsed Drain Current ①	110		
PD @ TC = 25°C Max. Power Dissipation		150	W	
	Linear Derating Factor	1.2	W/°C	
VGS Gate-to-Source Voltage		±20	V	
EAS	Single Pulse Avalanche Energy 2	500	mJ	
IAR	Avalanche Current ①	27.4	Α	
EAR	Repetitive Avalanche Energy ①	15.0	mJ	
dv/dt	Peak Diode Recovery dv/dt 3	5.0	V/ns	
TJ	Operating Junction	-55 to 150		
TSTG Storage Temperature Range			°C	
	Lead Temperature	300 (0.063 in.(1.6mm) from case for 10s)		
	Weight	9.3 (Typical)	g	





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Electrical Characteristics @ Tj = 25°C (Unless Otherwise Specified)

	Parameter	Min	Тур	Max	Units	Test Conditions
BVDSS	Drain-to-Source Breakdown Voltage	200	_	_	V	VGS = 0V, ID = 1.0mA
ΔBVDSS/ΔTJ	Temperature Coefficient of Breakdown Voltage	_	0.28	_	V/°C	Reference to 25°C, ID = 1.0mA
RDS(on)	Static Drain-to-Source On-State	_	-	0.100	Ω	VGS = 10V, ID = 17A
	Resistance	_	_	0.105	52	VGS = 10V, ID = 27.4A
VGS(th)	Gate Threshold Voltage	2.0	_	4.0	V	V _{DS} = V _{GS} , I _D = 250μA
9fs	Forward Transconductance	9.0	_	_	S (7)	V _{DS} > 15V, I _{DS} = 17A ④
IDSS	Zero Gate Voltage Drain Current		_	25		VDS= 160V ,VGS=0V
	-	_	_	250	μА	V _{DS} = 160V,
						VGS = 0V, TJ = 125°C
IGSS	Gate-to-Source Leakage Forward	_	_	100		VGS = 20V
IGSS	Gate-to-Source Leakage Reverse	_	-	-100	nA	VGS = -20V
Qg	Total Gate Charge	_	_	115		VGS =10V, ID = 27.4A
Qgs	Gate-to-Source Charge	_	_	22	nC	V _{DS} = 100V
Qgd	Gate-to-Drain ('Miller') Charge	_	_	60		
td(on)	Turn-On Delay Time	_	_	35		V _{DD} = 50V, I _D = 44A,
tr	Rise Time	1-1	_	190		V_{GS} =10V, R_{G} = 2.35 Ω
^t d(off)	Turn-Off Delay Time	_	_	170	ns	
tf	Fall Time	-	_	130		
LS+LD	Total Inductance	-	6.8	_	nΗ	Measured from drain lead (6mm/0.25in. from package) to source lead (6mm/0.25in. from package)
Ciss	Input Capacitance		3500	_		VGS = 0V, VDS = 25V
Coss	Output Capacitance	_	700	_	pF	f = 1.0MHz
Crss	Reverse Transfer Capacitance	_	110	_		
CDC	Drain-to-Case Capacitance	_	12	_		

Source-Drain Diode Ratings and Characteristics

	Parameter		Min	Тур	Max	Units	Test Conditions
Is	Continuous Source Current (I	Body Diode)	_	_	27.4	^	
ISM	Pulse Source Current (Body I	Diode) ①	_	_	110	Α	
VSD	Diode Forward Voltage		_	_	1.9	V	Tj = 25°C, IS = 27.4A, VGS = 0V 4
trr	Reverse Recovery Time		_	_	950	nS	Tj = 25°C, IF = 27.4A, di/dt \leq 100A/μs
QRR	Reverse Recovery Charge		_	_	9.0	μC	V _{DD} ≤ 50V ④
ton	Forward Turn-On Time	Intrinsic turn-on	time is	negligi	ble. Tur	n-on spe	eed is substantially controlled by L _S + L _D .

Thermal Resistance

	Parameter	Min	Тур	Max	Units	Test Conditions
RthJC	Junction-to-Case	_	_	0.83		
RthJCS	Case-to-Sink		0.21	_	°C/W	
RthJA	Junction-to-Ambient		_	48		Typical socket mount