

**REPETITIVE AVALANCHE AND dv/dt RATED
HEXFET[®] TRANSISTORS
THRU-HOLE (TO-204AA/AE)**

**IRF340
400V, N-CHANNEL**

Product Summary

Part Number	BVDSS	R _{DS(on)}	I _D
IRF340	400V	0.55Ω	10A

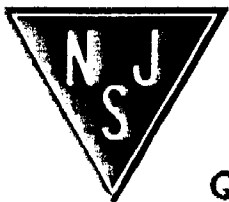
Features:

- Repetitive Avalanche Ratings
- Dynamic dv/dt Rating
- Hermetically Sealed
- Simple Drive Requirements
- Ease of Paralleling

Absolute Maximum Ratings

	Parameter		Units
I _D @ V _{GS} = 0V, T _C = 25°C	Continuous Drain Current	10	A
I _D @ V _{GS} = 0V, T _C = 100°C	Continuous Drain Current	6.0	
I _{DM}	Pulsed Drain Current ①	40	
PD @ T _C = 25°C	Max. Power Dissipation	125	W
	Linear Derating Factor	1.0	W/°C
V _{GS}	Gate-to-Source Voltage	+20	V
EAS	Single Pulse Avalanche Energy ②	5.7	mJ
I _{AR}	Avalanche Current ①	10	A
EAR	Repetitive Avalanche Energy ①	-	mJ
dv/dt	Peak Diode Recovery dv/dt ③	4.0	V/ns
T _J	Operating Junction	-55 to 150	°C
T _{STG}	Storage Temperature Range		
	Lead Temperature	300 (0.063 in. (1.6mm) from case for 10s)	
	Weight	11.5(typical)	g

NJ Semi-Conductors reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However, NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.



IRF340

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

	Parameter	Min	Typ	Max	Units	Test Conditions
BV _{DSS}	Drain-to-Source Breakdown Voltage	400	---	---	V	V _{GS} = 0V, I _D = 1.0mA
ΔBV _{DSS} /ΔT _j	Temperature Coefficient of Breakdown Voltage	---	0.46	---	V/°C	Reference to 25°C, I _D = 1.0mA
R _{DS(on)}	Static Drain-to-Source On-State Resistance	---	---	0.55	Ω	V _{GS} = 10V, I _D = 6.0A④
		---	---	0.63		V _{GS} = 10V, I _D = 10A ④
V _{GS(th)}	Gate Threshold Voltage	2.0	---	4.0	V	V _{DS} = V _{GS} , I _D = 250mA
g _{fs}	Forward Transconductance	4.9	---	---	S (Ω)	V _{DS} > 15V, I _{DS} = 6.0A ④
I _{DSS}	Zero Gate Voltage Drain Current	---	---	25	μA	V _{DS} = 320V, V _{GS} = 0V
		---	---	250		V _{DS} = 320V V _{GS} = 0V, T _j = 125°C
I _{GSS}	Gate-to-Source Leakage Forward	---	---	100	nA	V _{GS} = 20V
I _{GSS}	Gate-to-Source Leakage Reverse	---	---	-100		V _{GS} = -20V
Q _g	Total Gate Charge	32	---	65	nC	V _{GS} = 10V, I _D = 10A
Q _{gs}	Gate-to-Source Charge	2.2	---	10		V _{DS} = 200V
Q _{gd}	Gate-to-Drain ('Miller') Charge	14	---	41		
t _{d(on)}	Turn-On Delay Time	---	---	25	ns	V _{DD} = 200V, I _D = 10A, R _G = 9.1Ω
t _r	Rise Time	---	---	92		
t _{d(off)}	Turn-Off Delay Time	---	---	79		
t _f	Fall Time	---	---	58		
L _S + L _D	Total Inductance	---	6.1	---	nH	Measured from drain lead (6mm/0.25in. from package) to source lead (6mm/0.25in. from package)
C _{iss}	Input Capacitance	---	1400	---	pF	V _{GS} = 0V, V _{DS} = 25V f = 1.0MHz
C _{oss}	Output Capacitance	---	350	---		
C _{rss}	Reverse Transfer Capacitance	---	230	---		

Source-Drain Diode Ratings and Characteristics

	Parameter	Min	Typ	Max	Units	Test Conditions
I _S	Continuous Source Current (Body Diode)	---	---	10	A	
I _{SM}	Pulse Source Current (Body Diode) ①	---	---	40		
V _{SD}	Diode Forward Voltage	---	---	1.5	V	T _j = 25°C, I _S = 10A, V _{GS} = 0V ④
t _{rr}	Reverse Recovery Time	---	---	600	ns	T _j = 25°C, I _F = 10A, di/dt ≤ 100A/μs
Q _{RR}	Reverse Recovery Charge	---	---	5.6	μC	V _{DD} ≤ 50V ④
t _{on}	Forward Turn-On Time	Intrinsic turn-on time is negligible. Turn-on speed is substantially controlled by L _S + L _D .				

Thermal Resistance

	Parameter	Min	Typ	Max	Units	Test Conditions
R _{thJC}	Junction to Case	---	---	1.0	°C/W	Typical socket mount
R _{thJA}	Junction to Ambient	---	---	30		