



POWER-MOS FET

FIELD EFFECT POWER TRANSISTOR

VN30ABA Series
1.2 AMPERES 35-90 VOLTS R _{DS(ON)} = 2.5-5.0 Ω

This series of N-Channel Enhancement-mode Power MOSFETs utilizes GE's advanced Power DMOS technology to achieve low on-resistance with excellent device ruggedness and reliability.

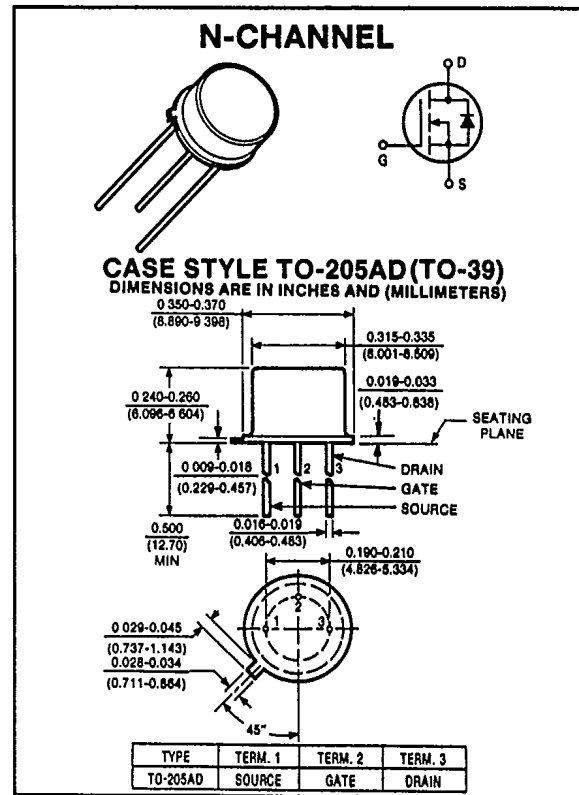
This design has been optimized to give superior performance in most switching applications including: switching power supplies, inverters, converters and solenoid/relay drivers. Also, the extended safe operating area with good linear transfer characteristics makes it well suited for many linear applications such as audio amplifiers and servo motors.

Applications

- Switching power supplies
- DC to DC inverters
- CMOS and TTL to high current interface
- Line drivers
- Logic buffers
- Pulse amplifiers

Features

- High speed, high current switching
- Current sharing capability when paralleled
- Directly interface to CMOS, DTL, TTL logic
- Simple DC biasing
- Extended safe operating area
- Inherently temperature stable



maximum ratings ($T_A = 25^\circ\text{C}$) (unless otherwise specified)

RATING	SYMBOL	VN30ABA/ VN35ABA	VN67ABA	VN89ABA	VN90ABA	UNITS
Drain-Source Voltage	V_{DSS}	35	60	80	90	Volts
Drain-Gate Voltage, $R_{GS} = 1M\Omega$	V_{DGR}	35	60	80	90	Volts
Continuous Drain Current @ $T_A = 25^\circ\text{C}$	I_D	1.2	1.2	1.2	1.2	A
Peak Drain Current ⁽¹⁾	I_{DM}	3.0	3.0	3.0	3.0	A
Gate-Source Voltage	V_{GS}	± 30	± 30	± 30	± 30	Volts
Total Power Dissipation @ $T_A = 25^\circ\text{C}$ Derate Above 25°C	P_D	6.25 50	6.25 50	6.25 50	6.25 50	Watts mW/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{STG}	-55 to 150	-55 to 150	-55 to 150	-55 to 150	$^\circ\text{C}$

thermal characteristics

Parameter	Symbol	VN30ABA/ VN35ABA	VN67ABA	VN89ABA	VN90ABA	Units
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	20	20	20	20	$^\circ\text{C/W}$
Maximum Lead Temperature for Soldering Purposes: 1/16" from Case for 10 Seconds	T_L	300	300	300	300	$^\circ\text{C}$

(1) Repetitive Rating: Pulse width limited by max. junction temperature.

CHARACTERISTIC	SYMBOL	MIN	TYP	MAX	UNIT
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off characteristics

Drain-Source Breakdown Voltage ($V_{GS} = 0V, I_D = 10 \mu A$)	VN30ABA;VN35ABA VN67ABA VN89ABA VN90ABA	BV_{DSS}	35 60 80 90	— — — —	— — — —	Volts
Zero Gate Voltage Drain Current ($V_{DS} = 25, V_{GS} = 0V$)		I_{DSS}	—	—	10	μA
Gate-Source Leakage Current ($V_{GS} = 15V, V_{DS} = 0V$)		I_{GSS}	—	—	100	nA

on characteristics*

Gate Threshold Voltage ($V_{DS} = V_{GS}, I_D = 1 mA$)		$V_{GS(TH)}$	0.8	1.2	—	Volts
Static Drain Source On-State Resistance ($V_{GS} = 5V$ $I_D = 0.3A$)	VN30ABA VN35ABA VN67ABA VN89ABA VN90ABA	$R_{DS(ON)}$	— — — — —	— — — — —	6.0 4.5 5.1 5.1 6.0	Ohms
Static Drain-Source On-State Resistance ($V_{GS} = 10V, I_D = 1.0A$)	VN30ABA VN35ABA VN67ABA VN89ABA VN90ABA	$R_{DS(ON)}$	— — — — —	— — — — —	5.0 2.5 3.5 4.5 5.0	Ohms
On-State Drain Current ($V_{DS} = 25V, V_{GS} = 10V$)		$I_{D(ON)}$	1	—	—	Amp
Forward Transconductance ($V_{DS} = 25V, I_D = 0.5A$)		g_{fs}	—	.25	—	mhos

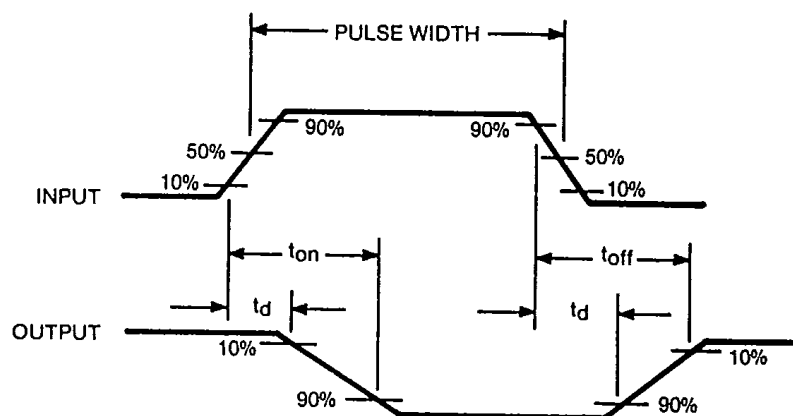
dynamic characteristics

Input Capacitance	$V_{GS} = 0V$ $V_{DS} = 24V$ $f = 1 MHz$	C_{iss}	—	—	50	pF					
Output Capacitance							C_{oss}	—	—	40	pF
Reverse Transfer Capacitance							C_{rss}	—	—	10	pF

switching characteristics*

Turn-on Delay Time	See switching times waveforms below	$t_{d(on)}$	—	—	10	ns
Turn-off Delay Time		$t_{d(off)}$	—	—	10	ns

*Pulse Test: Pulse width $\leq 300 \mu s$, duty cycle $\leq 2\%$



SWITCHING TIME TEST WAVEFORMS