



# POWER-MOS FET

## FIELD EFFECT POWER TRANSISTOR

**2N6660,1**

1.2 AMPERES  
60, 90 VOLTS  
 $R_{DS(ON)} = 3.0 \Omega$

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.

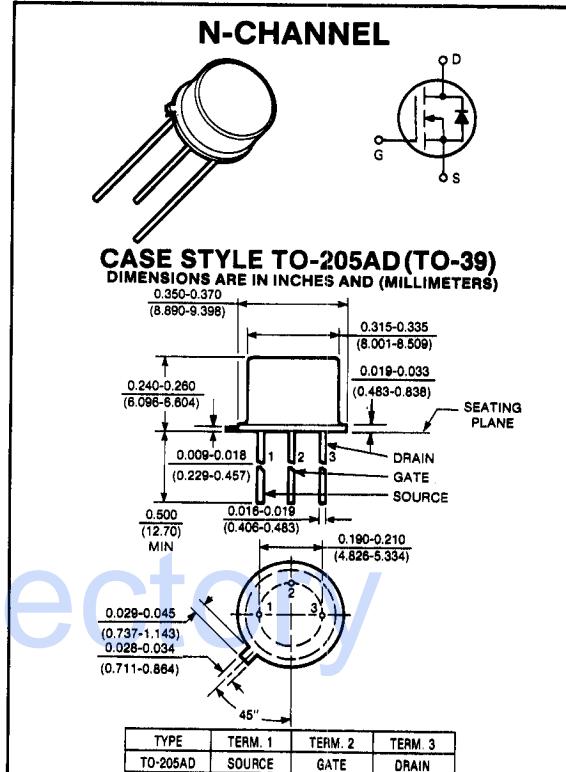
This design has been optimized to give superior performance in most switching applications including: switching power supplies, inverters, converters and solenoid/relay drivers. Also, the extended safe operating area with good linear transfer characteristics makes it well suited for many linear applications 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
- High frequency linear 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
- Typical  $t_{on}$  and  $t_{off} < 5\text{ns}$



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

RATING	SYMBOL	2N6660	2N6661	UNITS
Drain-Source Voltage	$V_{DSS}$	60	90	Volts
Drain-Gate Voltage, $R_{GS} = 1\text{M}\Omega$	$V_{DGR}$	60	90	Volts
Continuous Drain Current @ $T_A = 25^\circ\text{C}$	$I_D$	1.2	1.2	A
Peak Drain Current <sup>(1)</sup>	$I_{DM}$	3.0	3.0	A
Gate-Source Voltage	$V_{GS}$	$\pm 30$	$\pm 30$	Volts
Total Power Dissipation @ $T_A = 25^\circ\text{C}$ Derate Above $25^\circ\text{C}$	$P_D$	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	$^\circ\text{C}$

### thermal characteristics

Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	20°C	20°C	°C/W
Maximum Lead Temperature for Soldering Purposes: 1/16" from Case for 10 Seconds	$T_L$	300	300	°C

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

## electrical characteristics ( $T_A = 25^\circ C$ ) (unless otherwise specified)

CHARACTERISTIC	SYMBOL	MIN	TYP	MAX	UNIT
<b>off characteristics</b>					
Drain-Source Breakdown Voltage ( $V_{GS} = 0V$ , $I_D = 10 \mu A$ ) ( $V_{GS} = 0V$ , $I_D = 2.5 MA$ )	2N6660 2N6661 2N6660 2N6661	BVDSS 60 90 60	— — — —	— — — —	Volts
Zero Gate Voltage Drain Current ( $V_{DS} = \text{Max Rating}$ , $V_{GS} = 0V$ ) ( $V_{DS} = \text{Max Rating} \times 0.8$ , $V_{GS} = 0V$ , $T_A = 125^\circ C$ )	$I_{DSS}$	— —	— —	10 500	$\mu A$
Gate-Source Leakage Current ( $V_{GS} = 15V$ , $V_{DS} = 0V$ ) ( $V_{GS} = 15V$ , $V_{DS} = 0V$ - $T_A = 125^\circ C$ )	$I_{GSS}$	— —	— —	100 500	nA

## on characteristics\*

Gate Threshold Voltage ( $V_{DS} = V_{GS}$ , $I_D = 1 mA$ )	$V_{GS(TH)}$	0.8	—	2.0	Volts
Drain-Source Saturation Voltage ( $V_{GS} = 5V$ , $I_D = 0.3A$ )	2N6660 2N6661	$V_{DS(ON)}$ —	— —	1.5 1.6	Volts
Drain-Source Saturation Voltage ( $V_{GS} = 10V$ , $I_D = 1.0A$ )	2N6660 2N6661	$V_{DS(ON)}$ —	— —	3.0 4.0	Volts
On-State Drain Current ( $V_{DS} = 25V$ , $V_{GS} = 10V$ )	$I_{D(ON)}$	1.0	—	—	Amp
Forward Transconductance ( $V_{DS} = 24V$ , $I_D = 0.5A$ )	$g_{fs}$	.17	.25	—	mhos

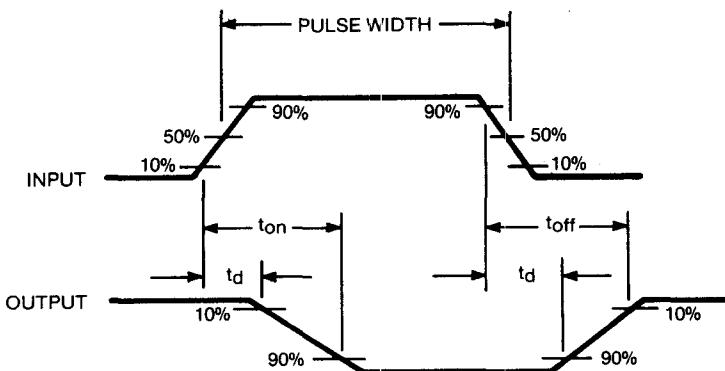
## dynamic characteristics

Input Capacitance	$V_{GS} = 0V$ , $V_{DS} = 25V$ $f = 1 MHz$	$C_{iss}$	—	—	50	pF
Output Capacitance		$C_{oss}$	—	—	40	pF
Reverse Transfer Capacitance		$C_{rss}$	—	—	10	pF
		$C_{crss}$	—	—	35	pF

## switching characteristics\*

Turn-on Delay Time	See switching times waveform below	$t_{d(on)}$	—	2	5	ns
Rise Time		$t_r$	—	2	5	ns
Turn-off Delay Time		$t_{d(off)}$	—	2	5	ns
Fall Time		$t_f$	—	2	5	ns

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



**SWITCHING TIME TEST WAVEFORMS**