DIGITRON™ Semiconductors

High-reliability discrete products
and engineering services since 1977

2N6661

90V N-CHANNEL MOSFET

FEATURES

- Available as "HR" (high reliability) screened per MIL-PRF-19500, JANTX level. Add "HR" suffix to base part number.
- Available as non-RoHS (Sn/Pb plating), standard, and as RoHS by adding "-PBF" suffix.

MAXIMUM RATINGS

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V_{DS}	90	V
Gate-Source Voltage		V_{GS}	±20	
Continuous Drain Current (T_J = 150°C)	T_C = 25°C	I_D	0.86	A
	T_C = 100C		0.54	
Pulse Drain Current [1]		I_{DM}	3	
Maximum Power Dissipation	T_C = 25°C	P_D	6.25	W
	T_A = 25°C		0.725	
Thermal Resistance, Junction to Ambient		R_{thJA}	170	°C/W
Thermal Resistance, Junction to Case		R_{thJC}	20	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to +150	°C

Note 1: Pulse width limited by maximum junction temperature

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise specified)

Parameter	Symbol	Test Conditions		Limits Min	Limits Typ[2]	Limits Max	Unit
STATIC							
Drain-Source Breakdown Voltage	V_{DS}	V_{DS} = 0V, I_D = 10µA		90	125	-	V
Gate-Source Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 1mA		0.8	1.6	2	V
			T_A = -55°C	-	1.8	2.5	
			T_A = 125°C	0.3	1.3	-	
Gate-Body Leakage	I_{GSS}	V_{GS} = ±20V	V_{DS} = 0V	-	-	±100	nA
			T_A = 125°C	-	-	±500	
Zero Gate Voltage Drain Current	I_{DSS}	V_{GS} = 0V	V_{DS} = 72V	-	-	1	µA
			T_A = 125°C	-	-	100	µA
On-State Drain Current[2]	$I_{D(on)}$	V_{GS} = 10V	V_{DS} = 10V	-	1.8	-	mA
Drain-Source On-State Resistance [2]	$R_{DS(on)}$	V_{GS} = 5V	I_D = 0.3A	-	3.8	5.3	Ω
		V_{GS} = 10V	I_D = 1A	-	3.6	4	
			T_A = 125°C	-	6.7	7.5	
Forward Transconductance [2]	g_{fs}	V_{DS} = 7.5V, I_D = 0.475A		170	340	-	mS
Diode Forward Voltage	V_{SD}	V_{GS} = 0V, I_S = 0.86A		0.7	0.9	1.4	V
DYNAMIC							
Input Capacitance	C_{iss}	V_{GS} = 0V	V_{DS} = 25V, f = 1MHz	-	35	50	pF
Output Capacitance	C_{oss}			-	15	40	
Reverse Transfer Capacitance	C_{rss}			-	2	10	
Drain Source Capacitance	C_{ds}			-	30	-	

DIGITRON™ Semiconductors

High-reliability discrete products
and engineering services since 1977

2N6661

90V N-CHANNEL MOSFET

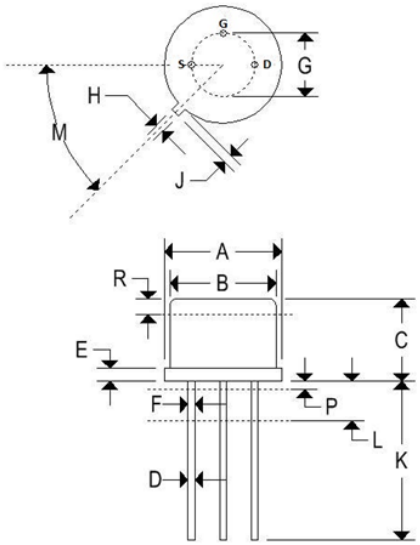
ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Limits			Unit
			Min	Typ	Max	
SWITCHING [3]						
Turn-On Time	t_{ON}	V_{DD} = 25V, R_L = 23 Ω, $I_D \approx$ 1A , V_{GEN} = 10V, R_g = 23Ω	-	6	10	nS
Turn-Off Time	t_{OFF}		-	8	10	

Note 2. Pulse test: PW ≤ 300μs duty cycle ≤ 2%.
Note 3. Switching time is essentially independent of operating temperature.

MECHANICAL CHARACTERISTICS

Case	TO-39
Marking	Alpha-numeric
Pin out	See below



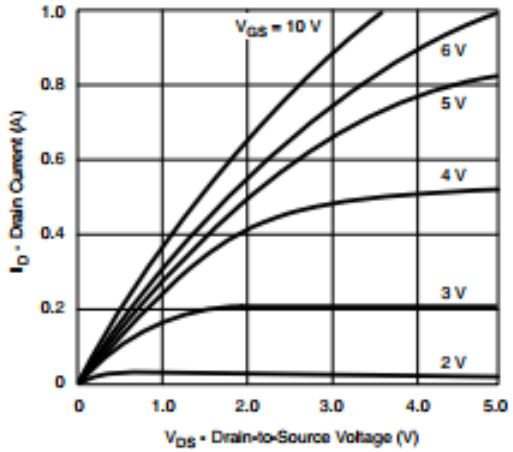
	TO-39			
	Inches		Millimeters	
	Min	Max	Min	Max
A	0.350	0.370	8.890	9.400
B	0.315	0.335	8.000	8.510
C	0.240	0.260	6.10	6.60
D	0.016	0.021	0.406	0.533
E	0.009	0.125	0.2269	3.180
F	0.016	0.019	0.406	0.533
G	0.190	0.210	4.830	5.33
H	0.028	0.034	0.711	0.864
J	0.029	0.040	0.737	1.020
K	0.500	-	12.700	-
L	0.250	-	6.350	-
M	45° NOM		45° NOM	
P	-	0.050	-	1.270
Q	90° NOM		90° NOM	
R	0.100	-	2.540	-

DIGITRON™ Semiconductors

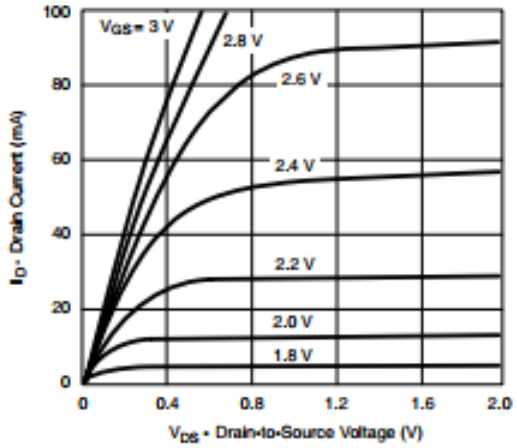
High-reliability discrete products
and engineering services since 1977

2N6661

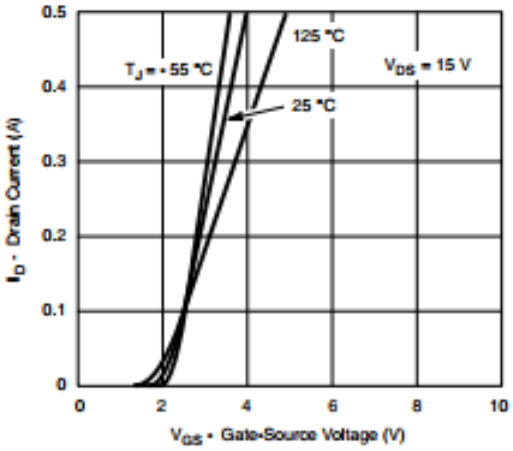
90V N-CHANNEL MOSFET



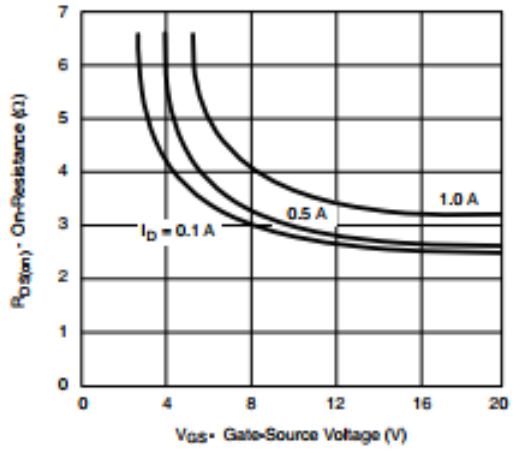
Ohmic Region Characteristics



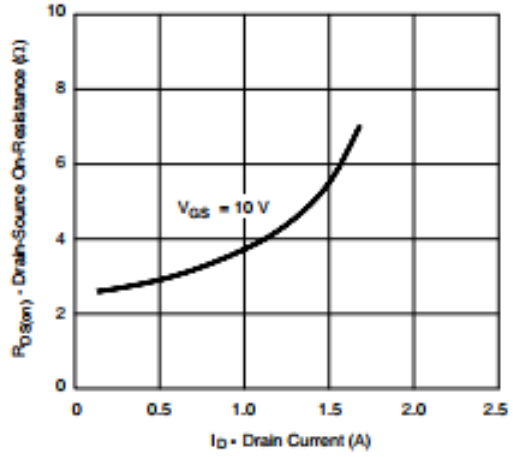
Output Characteristics for Low Gate Drive



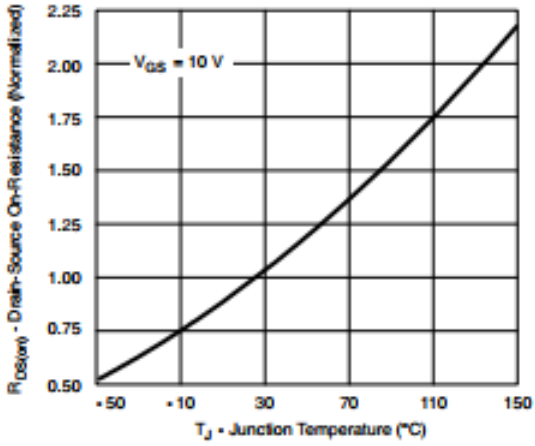
Transfer Characteristics



On-Resistance vs. Gate-to-Source Voltage



On-Resistance vs. Drain Current



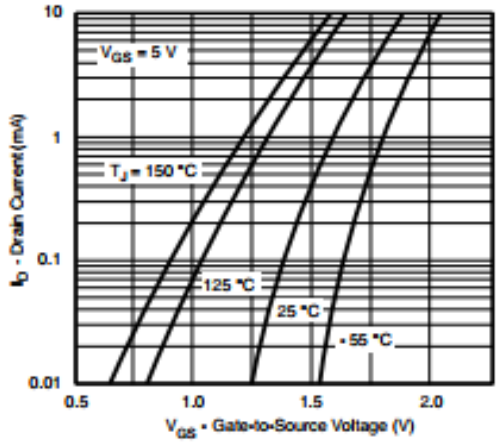
Normalized On-Resistance vs. Junction Temperature

DIGITRON™ Semiconductors

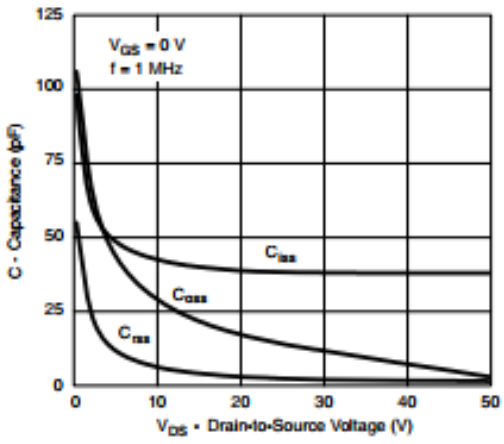
High-reliability discrete products and engineering services since 1977

2N6661

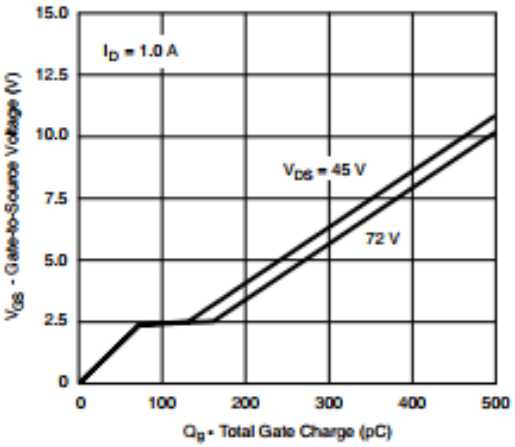
90V N-CHANNEL MOSFET



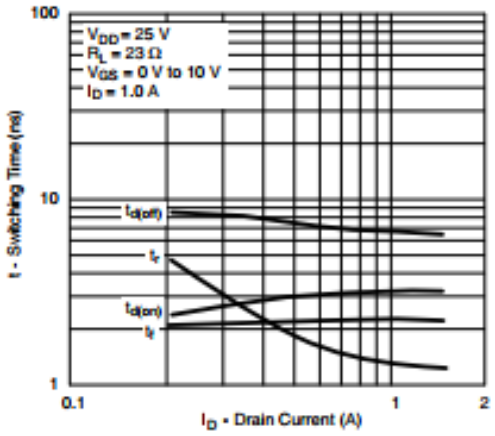
Threshold Region



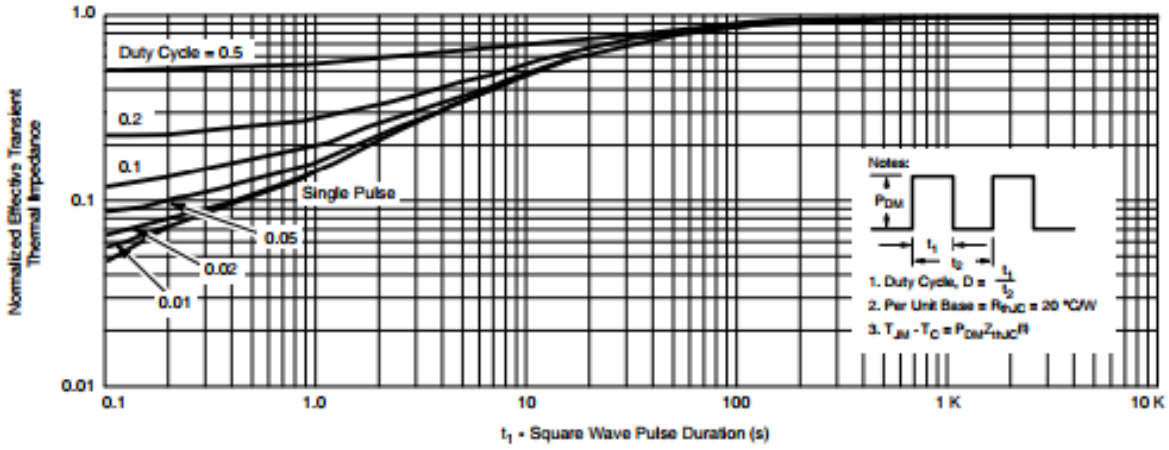
Capacitance



Gate Charge



Load Condition Effects on Switching



Normalized Thermal Transient Impedance, Junction-to-Ambient