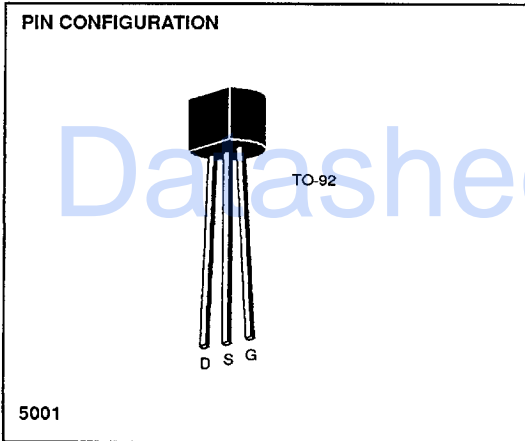


2N5638 – 2N5640



ABSOLUTE MAXIMUM RATINGS

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

Drain-Source Voltage	30V
Drain-Gate Voltage	30V
Source-Gate Voltage	30V
Forward Gate Current	10mA
Storage Temperature Range	-65°C to $+150^\circ\text{C}$
Operating Temperature Range	-55°C to $+135^\circ\text{C}$
Lead Temperature (Soldering, 10sec)	$+300^\circ\text{C}$
Power Dissipation	310mW
Derate above 25°C	2.82mW/ $^\circ\text{C}$

NOTE: Stresses above those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions above those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

ORDERING INFORMATION

Part	Package	Temperature Range
2N5638-40	Plastic TO-92	-55°C to $+135^\circ\text{C}$
Preferred Part = J111 Series		

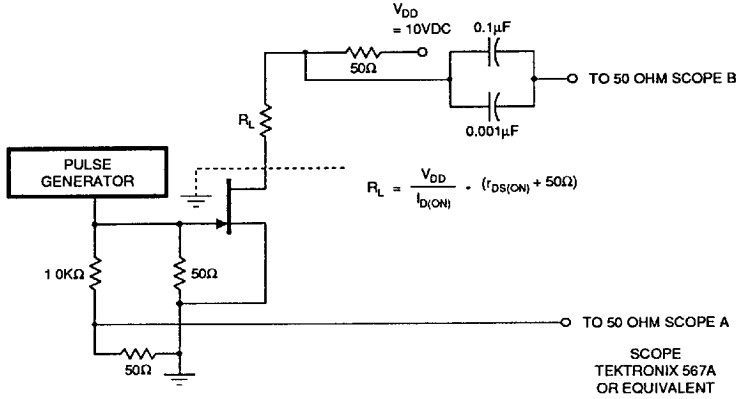
ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise specified)

SYMBOL	PARAMETER	2N5638		2N5639		2N5640		UNITS	TEST CONDITIONS
		MIN	MAX	MIN	MAX	MIN	MAX		
BV_{GSS}	Gate Reverse Breakdown Voltage	-30		-30		-30		V	$I_G = -10\mu\text{A}$, $V_{DS} = 0$
I_{GSS}	Gate Reverse Current		-1.0		-1.0		-1.0	nA	$V_{GS} = -15\text{V}$, $V_{DS} = 0$
			-1.0		-1.0		-1.0	μA	$T_A = 100^\circ\text{C}$
$I_{D(off)}$	Drain Cutoff Current		1.0		1.0		1.0	nA	$V_{DS} = 15\text{V}$, $V_{GS} = -12\text{V}$ (2N5638), $V_{GS} = -8\text{V}$ (2N5639), $V_{GS} = -6\text{V}$ (2N5640)
			1.0		1.0		1.0	μA	$T_A = 100^\circ\text{C}$
I_{DSS}	Saturation Drain Current	50		25		5.0		mA	$V_{DS} = 20\text{V}$, $V_{GS} = 0$ (Note 1)
$V_{DS(on)}$	Drain-Source ON Voltage		0.5		0.5		0.5	V	$V_{GS} = 0$, $I_D = 12\text{mA}$ (2N5638), $I_D = 6\text{mA}$ (2N5639), $I_D = 3\text{mA}$ (2N5640)
$r_{DS(on)}$	Static Drain-Source ON Resistance		30		60		100	Ω	$I_D = 1\text{mA}$, $V_{GS} = 0$
$r_{DS(on)}$	Drain-Source ON Resistance		30		60		100	Ω	$V_{GS} = 0$, $I_D = 0$ f = 1kHz
C_{ISS}	Common-Source Input Capacitance (Note 2)		10		10		10	pF	$V_{GS} = -12\text{V}$, $V_{DS} = 0$ f = 1MHz
C_{RSS}	Common-Source Reverse Transfer Capacitance (Note 2)		4.0		4.0		4.0	pF	
$t_{d(on)}$	Turn-On Delay Time (Note 2)		4.0		6.0		8.0	ns	$V_{DD} = 10\text{V}$, $I_{D(on)} = 12\text{mA}$ (2N5638) $V_{GS(on)} = 0$
t_r	Rise Time (Note 2)		5.0		8.0		10	ns	$V_{GS(off)} = -10\text{V}$, $I_{D(on)} = 6\text{mA}$ (2N5639)
t_d	Turn-OFF Delay Time (Note 2)		5.0		10		15	ns	$R_G = 50\Omega$, $I_{D(on)} = 3\text{mA}$ (2N5640)
t_f	Fall Time (Note 2)		10		20		30	ns	(Note 2)

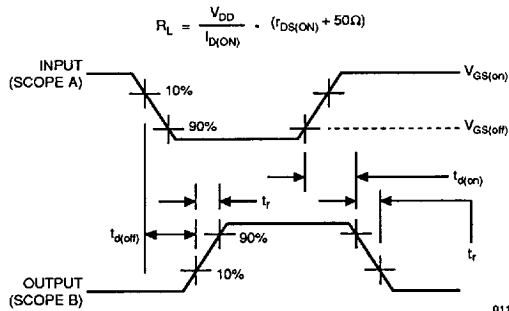
- NOTES: 1. Pulse test; PW $\leq 300\mu\text{s}$, duty cycle $\leq 3\%$.
2. For design reference only, not 100% tested

■ 1844322 0000930 826 ■

SWITCHING TIMES TEST CIRCUITS



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