n-channel JFETs *designed for . . .*

- **Analog Switches**
- **Commutators**
- **Choppers**

Siliconix

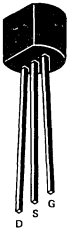
Performance Curves NCB/NZB See Section 4

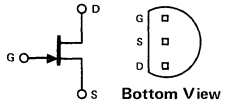
BENEFITS

- Low Cost
- Industry Standard Package
- Automatic Insertion Package
- Fast Switching
  $t_{rise} < 5$ ns (2N5638)
- Low Insertion Loss
  $r_{DS(on)} < 30\ \Omega$ (2N5638)
- Short Sample and Hold Aperture Time
  $C_{rss} < 4$ pF

Plastic

TO-92
See Section 6





*ABSOLUTE MAXIMUM RATINGS (25°C)

Drain-Source Breakdown Voltage	30 V
Drain-Gate Breakdown Voltage	30 V
Source-Gate Breakdown Voltage	30 V
Forward Gate Current	10 mA
Total Device Dissipation at T_{LEAD} = 25°C	625 mW
Derate above 25°C	5.68 mW/°C
Operating Junction Temperature Range	-65 to +135°C
Storage Temperature Range	-65 to +150°C
Lead Temperature (1/16" from case for 10 seconds)	300°C

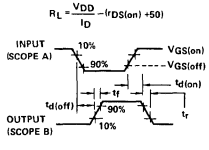
*ELECTRICAL CHARACTERISTICS (25°C unless otherwise noted)

		Characteristic		2N5638		2N5639		2N5640		Unit	Test Conditions	
				Min	Max	Min	Max	Min	Max			
1		BV_{GSS}	Gate-Source Breakdown Voltage	-30		-30		-30		V	I_G = -10 μA, V_{DS} = 0	
2	STATIC	I_{GSS}	Gate Reverse Current		-1.0		-1.0		-1.0	nA	V_{GS} = -15 V, V_{DS} = 0	
3					-1.0		-1.0		-1.0	μA		T_A = +100°C
4		$I_{D(off)}$	Drain Cutoff Current		1.0		1.0		1.0	nA	V_{DS} = 15 V, V_{GS} = -12 V (2N5638)	
5					1.0		1.0		1.0	μA	V_{GS} = -8 V (2N5639), V_{GS} = -6 V (2N5640)	T_A = +100°C
6		I_{DSS}	Saturation Drain Current	50		25		5.0		mA	V_{DS} = 20 V, V_{GS} = 0 (Note 1)	
7		$V_{DS(on)}$	Drain-Source ON Voltage		0.5		0.5		0.5	V	V_{GS} = 0, I_D = 12 mA (2N5638), I_D = 6 mA (2N5639), I_D = 3 mA (2N5640)	
8		$r_{DS(on)}$	Static Drain-Source ON Resistance		30		60		100	Ω	I_D = 1 mA, V_{GS} = 0	
9		$r_{ds(on)}$	Drain-Source ON Resistance		30		60		100		V_{GS} = 0, I_D = 0	f = 1 kHz
10	DYN	C_{iss}	Common-Source Input Capacitance		10		10		10	pF	V_{GS} = -12 V, V_{DS} = 0	f = 1 MHz
11		C_{rss}	Common-Source Reverse Transfer Capacitance		4.0		4.0		4.0			
12	SW	$t_{d(on)}$	Turn-On Delay Time		4.0		6.0		8.0	nsec	V_{DD} = 10 V $I_{D(on)}$ = 12 mA (2N5638) R_L = 800 Ω (2N5638)	
13		t_r	Rise Time		5.0		8.0		10		$V_{GS(on)}$ = 0 $I_{D(on)}$ = 6 mA (2N5639) R_L = 1.6k Ω (2N5639)	
14		$t_{d(off)}$	Turn-OFF Delay Time		5.0		10		15		$V_{GS(off)}$ = -10 V $I_{D(on)}$ = 3 mA (2N5640) R_L = 3.2k Ω (2N5640)	
15		t_f	Fall Time		10		20		30			

* JEDEC registered data

NOTE:

1 Pulse test PW ≤ 300 μsec, duty cycle ≤ 3.0%



NCB/NZB