n-channel JFETs *designed for . . .*

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

Performance Curves NC
See Section 4

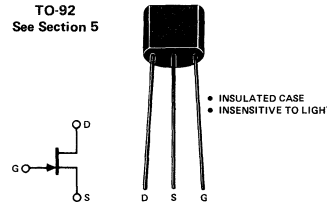
BENEFITS

- Low Cost
- Automatic Insertion Package
- High Speed
  $t_{ON} + t_{OFF}$ = 24 ns Max (2N5653)
- Low Insertion Loss
  $R_{DS(on)}$ = 50 Ω Max (2N5653)

*ABSOLUTE MAXIMUM RATINGS (25°C)

Drain-Source Voltage . . . . . 30 V
Drain-Gate Voltage . . . . . 30 V
Source-Gate Voltage . . . . . 30 V
Forward Gate Current . . . . . 10 mA
Total Device Dissipation at (or Below) T_A = 25°C
(Derate 2.82 mW/°C to 135°C) . . . . . 310 mW
Operating Junction Temperature Range . . . . . −65 to +135°C
Storage Temperature Range . . . . . −65 to +150°C

TO-92
See Section 5



*ELECTRICAL CHARACTERISTICS (25°C unless otherwise noted)

		Characteristic		2N5653 Min	2N5653 Max	2N5654 Min	2N5654 Max	Unit	Test Conditions	
1		BV_{GSS}	Gate-Source Breakdown Voltage	−30		−30		V	I_G = −10 μA, V_{DS} = 0	
2	STATIC	I_{GSS}	Gate Reverse Current		−1.0		−1.0	nA	V_{GS} = −15 V, V_{DS} = 0	
3	STATIC	I_{GSS}	Gate Reverse Current		−1.0		−1.0	μA	V_{GS} = −15 V, V_{DS} = 0	T_A = +100°C
4	STATIC	$I_{D(off)}$	Drain Cutoff Current		1.0		1.0	nA	V_{DS} = 15 V, V_{GS} = −12 V (2N5653)	
5	STATIC	$I_{D(off)}$	Drain Cutoff Current		1.0		1.0	μA	V_{GS} = −8 V (2N5654)	T_A = +100°C
6	STATIC	I_{DSS}	Saturation Drain Current	40		15		mA	V_{DS} = 20 V, V_{GS} = 0 (Note 1)	
7		$V_{DS(on)}$	Drain-Source ON Voltage		0.75		0.75	V	V_{GS} = 0, I_D = 10 mA (2N5653), I_D = 5 mA (2N5654)	
8		$r_{DS(on)}$	Static Drain-Source ON Resistance		50		100	Ω	I_D = 1 mA, V_{GS} = 0	
9		$r_{ds(on)}$	Drain-Source ON Resistance		50		100	Ω	V_{GS} = 0, I_D = 0	f = 1 kHz
10	DYN	C_{iss}	Common-Source Input Capacitance		10		10	pF	V_{GS} = −12 V, V_{DS} = 0	f = 1 MHz
11	DYN	C_{rss}	Common-Source Reverse Transfer Capacitance		3.5		3.5	pF	V_{GS} = −12 V, V_{DS} = 0	f = 1 MHz
12	SW	$t_{d(on)}$	Turn-ON Delay Time		4.0		6.0	nsec	V_{DD} = 10 V, $I_{D(on)}$ = 10 mA (2N5653)	
13	SW	t_r	Rise Time		5.0		8.0	nsec	$V_{GS(on)}$ = 0, $I_{D(on)}$ = 5 mA (2N5654)	
14	SW	$t_{d(off)}$	Turn-OFF Delay Time		5.0		10	nsec	$V_{GS(off)}$ = −12 V, R_L = 925 Ω (2N5653)	
15	SW	t_f	Fall Time		10		20	nsec	R_L = 1.85K Ω (2N5654)	

*JEDEC registered data

NOTE:
1. Pulse test PW ≤ 300 μs, duty cycle ≤ 3%.