

IFN3954, IFN3955, IFN3956, IFN3957, IFN3958

N-Channel Matched Dual Silicon Junction Field-Effect Transistor

- Improved Replacement for the 2N3954, 2N3955, 2N3456, 2N3457, & 2N3958
- Differential Inputs

Absolute maximum ratings at $T_A = 25^\circ\text{C}$

Reverse Gate Source & Gate Drain Voltage	-50V
Continuous Forward Gate Current	50 mA
Continuous Device Power Dissipation	250 mW
Power Derating	2.6 mW/ $^\circ\text{C}$
Operating Temperature Range	-55 $^\circ\text{C}$ to +125 $^\circ\text{C}$
Storage Temperature Range	-65 $^\circ\text{C}$ to +150 $^\circ\text{C}$

At 25 $^\circ\text{C}$ free air temperature

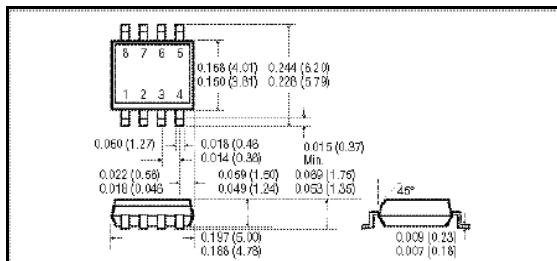
Static Electrical Characteristics

		3954, 3955, 3956, 3957, 3958				Process NJ16	
		Min	Typ	Max	Unit	Test Conditions	
Gate Source Breakdown Voltage	$V_{(BR)GSS}$	-50			V	$I_G = -1 \mu\text{A}$, $V_{DS} = 0 \text{ V}$	
Gate Reverse Current	I_{GSS}			-100 -500	pA nA	$V_{GS} = -30 \text{ V}$, $V_{DS} = 0 \text{ V}$ 125 $^\circ\text{C}$	
Gate Current	I_G			-50 -250	pA nA	$V_{DS} = 20 \text{ V}$, $I_D = 200 \mu\text{A}$ 125 $^\circ\text{C}$	
Gate Source Cutoff Voltage	$V_{GS(OFF)}$	-1		-4.5	V	$V_{DS} = 20 \text{ V}$, $I_G = 1 \text{ nA}$	
Drain Saturation Current (pulsed)	I_{DSS}	0.5		5	mA	$V_{DS} = 20 \text{ V}$, $V_{GS} = 0 \text{ V}$	
Gate Source Voltage	V_{GS}	-0.5		-4.2 -4	V	$V_{DS} = 20 \text{ V}$, $I_D = 50 \mu\text{A}$ $V_{DS} = 20 \text{ V}$, $I_D = 200 \mu\text{A}$	
Gate Source Forward Voltage	$V_{GS(F)}$			2	V	$V_{DS} = 0 \text{ V}$, $I_G = 1 \text{ mA}$	

Dynamic Electrical Characteristics

Common-Source Forward Transconductance	g_{fs}	1		3	mS	$V_{DS} = 20 \text{ V}$, $V_{GS} = 0 \text{ V}$	1 kHz 200 MHz
Common-Source Output Conductance	g_{os}			35	μS	$V_{DS} = 20 \text{ V}$, $V_{GS} = 0 \text{ V}$	$f = 1 \text{ kHz}$
Common-Source Input Capacitance	C_{iss}			4	pF	$V_{DS} = 20 \text{ V}$, $V_{GS} = 0 \text{ V}$	$f = 1 \text{ MHz}$
Common-Source Reverse Transfer Capacitance	C_{rss}			1.2	pF	$V_{DS} = 20 \text{ V}$, $V_{GS} = 0 \text{ V}$	$f = 1 \text{ MHz}$
Noise Factor $R_G = 10 \text{ M}\Omega$	NF			0.5	dB	$V_{DS} = 20 \text{ V}$, $V_{GS} = 0 \text{ V}$	$f = 1 \text{ kHz}$

		3954	3955	3956	3957	3958	Unit	Test Conditions	T_A
		Max	Max	Max	Max	Max			
Differential Gate-Source Voltage	$ V_{GS1} - V_{GS2} $	5	10	15	20	25	mV	$V_{DG} = 20 \text{ V}$, $I_D = 200 \mu\text{A}$	
Differential Gate Source Voltage with Temperature	$\Delta V_{GS1} - V_{GS2} $	0.8 1.0	2 2.5	4 5	6 7	8 10	mV	$V_{DG} = 20 \text{ V}$, $I_D = 200 \mu\text{A}$	25 $^\circ\text{C}$ to -55 $^\circ\text{C}$ 25 $^\circ\text{C}$ to 125 $^\circ\text{C}$
Differential Gate Current	$ I_{G1} - I_{G2} $	10	10	10	10	10	nA	$V_{DG} = 20 \text{ V}$, $I_D = 200 \mu\text{A}$	125 $^\circ\text{C}$
		Min	Min	Min	Min	Min			
Saturation Drain Source Ratio	I_{DSS1}/I_{DSS2}	0.95	0.95	0.95	0.90	0.85		$V_{DG} = 20 \text{ V}$, $V_{GS} = 0 \text{ V}$	
Transconductance Ratio	g_{fs1}/g_{fs2}	0.97	0.97	0.95	0.90	0.85		$V_{DG} = 20 \text{ V}$, $I_D = 200 \mu\text{A}$	1 kHz

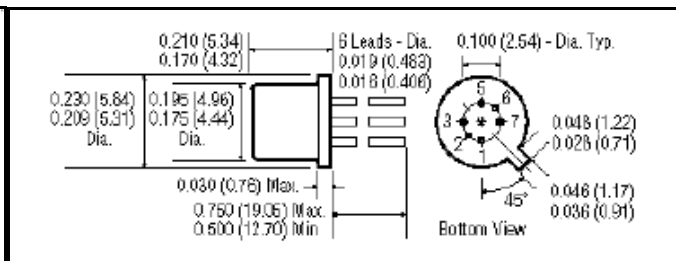


SOIC-8 Package

SMP3954, SMP3955, SMP3956,
SMP3957, SMP3958

Pin Configuration

1-G1, 2-D1, 3-S1, 4-G2,
5-G2, 6-D2, 7-S2, 8-G1



TO-71:

IFN3954, IFN3955, IFN3956,
IFN3957, IFN3958

Pin Configuration

1-S1, 2-D1, 3-G1,
4-S2, 5-D2, 6-G2

Dimensions
in Inches (mm)



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