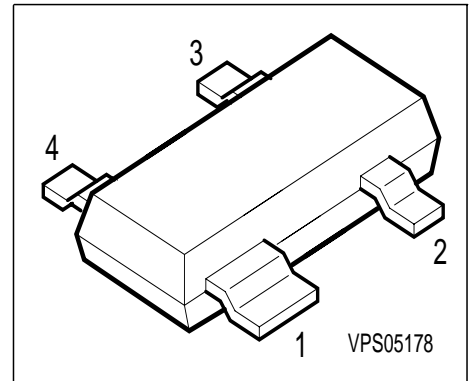


### Silicon N-Channel MOSFET Tetrode

#### Preliminary data

- For low noise, high gain controlled input stages up to 1GHz
- Operating voltage 5V



**ESD:** Electrostatic discharge sensitive device, observe handling precaution

Type	Marking	Ordering Code	Pin Configuration				Package
BF 2040	NCs	Q62702-F1775	1 = S	2 = D	3 = G2	4 = G1	SOT-143

#### Maximum Ratings

Parameter	Symbol	Value	Unit
Drain-source voltage	$V_{DS}$	14	V
Continuous drain current	$I_D$	40	mA
Gate 1/gate 2 peak source current	$\pm I_{G1/2SM}$	10	
Gate 1 (external biasing)	$+V_{G1SE}$	7	V
Total power dissipation, $T_S = 76\text{ °C}$	$P_{tot}$	200	mW
Storage temperature	$T_{stg}$	-55 ... +150	°C
Channel temperature	$T_{ch}$	150	

#### Thermal Resistance

Channel - soldering point	$R_{thchs}$	$\leq 370$	K/W
---------------------------	-------------	------------	-----

**Electrical Characteristics** at  $T_A = 25^\circ\text{C}$ , unless otherwise specified.

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
<b>DC characteristics</b>					
Drain-source breakdown voltage $I_D = 650 \mu\text{A}$ , $-V_{G1S} = 4 \text{ V}$ , $-V_{G2S} = 4 \text{ V}$	$V_{(BR)DS}$	-	12	-	V
Gate 1 - source breakdown voltage $+I_{G1S} = 10 \text{ mA}$ , $V_{G2S} = 0 \text{ V}$ , $V_{DS} = 0 \text{ V}$	$+V_{(BR)G1SS}$	-	8.5	-	
Gate 2 - source breakdown voltage $\pm I_{G2S} = 10 \text{ mA}$ , $V_{G1S} = V_{DS} = 0$	$+V_{(BR)G2SS}$	-	8.5	-	
Gate 1 source current $V_{G1S} = 5 \text{ V}$ , $V_{G2S} = 0 \text{ V}$	$+I_{G1SS}$	-	-	50	nA
Gate 2 source leakage current $V_{G2S} = 5 \text{ V}$ , $V_{G1S} = 0 \text{ V}$ , $V_{DS} = 0 \text{ V}$	$+I_{G2SS}$	-	-	50	
Drain current $V_{DS} = 5 \text{ V}$ , $V_{G1S} = 0 \text{ V}$ , $V_{G2S} = 4 \text{ V}$	$I_{DSS}$	-	-	-	$\mu\text{A}$
Drain-source current $V_{DS} = 5 \text{ V}$ , $V_{G2S} = 4 \text{ V}$ , $R_{G1} = 40 \text{ k}\Omega$	$I_{DSX}$	-	15	-	mA
Gate 2-source pinch-off voltage $V_{DS} = 5 \text{ V}$ , $I_D = 20 \mu\text{A}$	$V_{G2S(p)}$	0.3	0.6	-	V
Gate 1-source pinch-off voltage $V_{DS} = 5 \text{ V}$ , $V_{G2S} = 4 \text{ V}$ , $I_D = 20 \mu\text{A}$	$V_{G1S(p)}$	0.3	0.7	-	
<b>AC characteristics</b>					
Forward transconductance $V_{DS} = 5 \text{ V}$ , $I_D = 15 \text{ mA}$ , $V_{G2S} = 4 \text{ V}$	$g_{fs}$	-	45	-	mS
Gate 1 input capacitance $V_{DS} = 5 \text{ V}$ , $I_D = 15 \text{ mA}$ , $V_{G2S} = 4 \text{ V}$ , $f = 1 \text{ MHz}$	$C_{g1ss}$	-	3.7	-	pF
Output capacitance $V_{DS} = 5 \text{ V}$ , $I_D = 10 \text{ mA}$ , $V_{G2S} = 4 \text{ V}$ , $f = 1 \text{ MHz}$	$C_{dss}$	-	2.3	-	
Noise figure $V_{DS} = 5 \text{ V}$ , $I_D = 15 \text{ mA}$ , $f = 800 \text{ MHz}$	$F$	-	2	-	dB