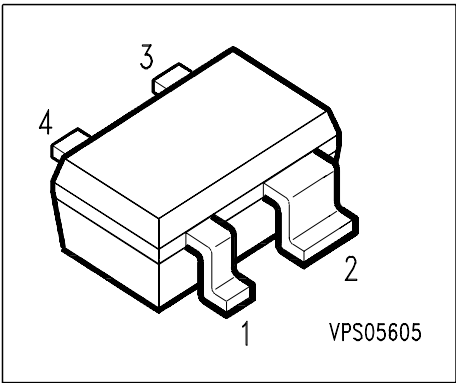


Silicon N-Channel MOSFET Tetrode

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 2040W	NCs	Q62702-F1776	1 = D	2 = S	3 = G1	4 = G2	SOT-343

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, $T_S = 94\text{ °C}$	P_{tot}	200	mW
Storage temperature	T_{stg}	-55 ...+150	°C
Channel temperature	T_{ch}	150	

Thermal Resistance

Channel - soldering point	R_{thchs}	≤ 280	K/W
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Electrical Characteristics at $T_A = 25^\circ\text{C}$, unless otherwise specified.

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