DMP2004

Features

- Low On-Resistance
- Very Low Gate Threshold Voltage $V_{GS(TH)}$ <1V
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- **Lead Free By Design/RoHS Compliant (Note 2)**
- **ESD Protected Gate**
- **"Green" Device (Note 3)**
- **Qualified to AEC-Q101 standards for High Reliability**

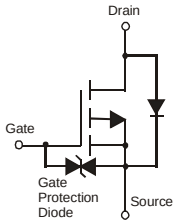
Mechanical Data

- Case: SOT-23
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish — Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Weight: 0.008 grams (approximate)

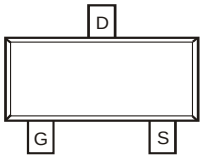
SOT-23

ESD protected

TOP VIEW



Equivalent Circuit



TOP VIEW

Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Units
Drain-Source Voltage	V_{DSS}	-20	V
Gate-Source Voltage	V_{GSS}	±8	V
Drain Current (Note 1) V_{GS} = -4.5V	I_D	-600	mA
Pulsed Drain Current	I_{DM}	-1.9	A

Thermal Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Units
Total Power Dissipation (Note 1)	P_D	550	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	227	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 4)						
Drain-Source Breakdown Voltage	BV_{DSS}	-20	—	—	V	V_{GS} = 0V, I_D = -250mA
Zero Gate Voltage Drain Current	I_{DSS}	—	—	-1.0	μA	V_{DS} = -20V, V_{GS} = 0V
Gate-Source Leakage	I_{GSS}	—	—	±1.0	μA	V_{GS} = ±4.5V, V_{DS} = 0V
ON CHARACTERISTICS (Note 4)						
Gate Threshold Voltage	$V_{GS(th)}$	-0.5	—	-1.0	V	V_{DS} = V_{GS}, I_D = -250μA
Static Drain-Source On-Resistance	$R_{DS\ (ON)}$	—	0.7 1.1 1.7	0.9 1.4 2.0	Ω	V_{GS} = -4.5V, I_D = -430mA V_{GS} = -2.5V, I_D = -300mA V_{GS} = -1.8V, I_D = -150mA
Forward Transfer Admittance	$\|Y_{fs}\|$	200	—	—	mS	V_{DS} = -10V, I_D = -0.2A
Diode Forward Voltage (Note 4)	V_{SD}	-0.5	—	-1.2	V	V_{GS} = 0V, I_S = -115mA
DYNAMIC CHARACTERISTICS						
Input Capacitance	C_{iss}	—	—	175	pF	V_{DS} = -16V, V_{GS} = 0V f = 1.0MHz
Output Capacitance	C_{oss}	—	—	30	pF	
Reverse Transfer Capacitance	C_{rss}	—	—	20	pF	

Notes:
1. Device mounted on FR-4 PCB.
2. No purposefully added lead.
3. Detail go to our website at www.twtysemi.com
4. Short duration pulse test used to minimize self-heating effect.