

Features

- Low On-Resistance
 - 70mΩ @V_{GS} = 4.5V
 - 100mΩ @V_{GS} = 2.5V
 - 170mΩ @V_{GS} = 1.5V
- Very Low Gate Threshold Voltage
- Low Input Capacitance
- Fast Switching Speed
- **Lead, Halogen and Antimony Free, RoHS Compliant "Green" Device (Notes 2, 3 and 6)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **ESD Protected Gate**

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-020D
- Terminal Connections: See Diagram
- Terminals: Finish — Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208
- Weight: 0.008 grams (approximate)



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}	±12	V
Drain Current (Note 1)	I _D	2.3	A
Pulsed Drain Current (Note 4)	I _{DM}	8	A

Thermal Characteristics

Characteristic	Symbol	Value	Units
Total Power Dissipation (Note 1)	P _D	600	mW
Thermal Resistance, Junction to Ambient	R _{θJA}	208	°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 5)						
Drain-Source Breakdown Voltage	BV _{DSS}	20	28	—	V	V _{GS} = 0V, I _D = 10μA
Zero Gate Voltage Drain Current	I _{DSS}	—	—	1	μA	V _{DS} = 20V, V _{GS} = 0V
Gate-Source Leakage	I _{GSS}	—	—	±10	μA	V _{GS} = ±12V, V _{DS} = 0V
ON CHARACTERISTICS (Note 5)						
Gate Threshold Voltage	V _{GS(th)}	0.45	—	1.0	V	V _{DS} = V _{GS} , I _D = 250μA
Static Drain-Source On-Resistance	R _{DS(ON)}	—	50	70	mΩ	V _{GS} = 4.5V, I _D = 3A
			70	100		V _{GS} = 2.5V, I _D = 2.3A
			125	170		V _{GS} = 1.5V, I _D = 0.5A
Forward Transfer Admittance	Y _{fs}	—	6	—	S	V _{DS} = 5V, I _D = 2.4A
Diode Forward Voltage (Note 5)	V _{SD}	—	0.7	0.9	V	V _{GS} = 0V, I _S = 1.05A
DYNAMIC CHARACTERISTICS						
Input Capacitance	C _{iss}	—	217	—	pF	V _{DS} = 10V, V _{GS} = 0V f = 1.0MHz
Output Capacitance	C _{oss}	—	62	—	pF	
Reverse Transfer Capacitance	C _{rss}	—	34	—	pF	

- Notes:
1. Device mounted on FR-4 PCB, on minimum recommended, 2oz Copper pad layout.
 2. No purposefully added lead. Halogen and Antimony Free.
 3. Detail go to our website at www.twtysemi.com
 4. Repetitive rating, pulse width limited by junction temperature.
 5. Short duration pulse test used to minimize self-heating effect.
 6. Product manufactured with Green Molding Compound and does not contain Halogens or Sb₂O₃ Fire Retardants.