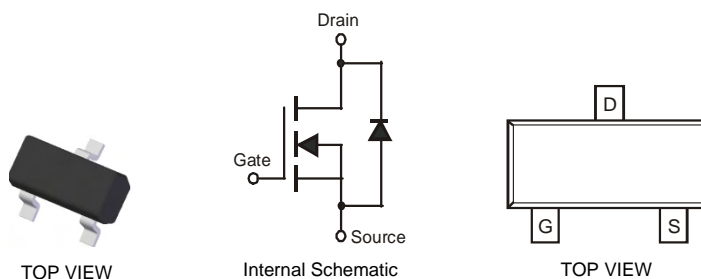


Features

- Low On-Resistance
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- **Lead Free By Design/RoHS Compliant (Note 1)**
- **"Green" Device (Note 2)**
- **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-020D
- Terminals: Finish — Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208
- Terminals Connections: See Diagram Below
- Weight: 0.008 grams (approximate)



Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic			Symbol	Value	Units
Drain-Source Voltage			V_{DSS}	20	V
Gate-Source Voltage			V_{GSS}	± 8	V
Continuous Drain Current (Note 3)	Steady State	$T_A = 25^\circ\text{C}$	I_D	4.2	A
		$T_A = 70^\circ\text{C}$		3.4	
Pulsed Drain Current (Note 4)			I_{DM}	27	A

Thermal Characteristics

Characteristic		Symbol	Value	Unit
Power Dissipation (Note 3)	$T_A = 25^\circ\text{C}$	P_D	0.8	W
	$T_A = 70^\circ\text{C}$		0.5	
Thermal Resistance, Junction to Ambient @ $T_A = 25^\circ\text{C}$		$R_{\theta JA}$	156	$^\circ\text{C/W}$
Operating and Storage Temperature Range		T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

- Notes:
1. No purposefully added lead.
 2. Device mounted on FR-4 PCB, with minimum recommended pad layout.
 3. Repetitive rating, pulse width limited by junction temperature.

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	-	-	V	V _{GS} = 0V, I _D = 10μA
Zero Gate Voltage Drain Current T _J = 25°C	I _{DSS}	-	-	1.0	μA	V _{DS} = 20V, V _{GS} = 0V
Gate-Source Leakage	I _{GSS}	-	-	±100	nA	V _{GS} = ±8V, V _{DS} = 0V
ON CHARACTERISTICS (Note 5)						
Gate Threshold Voltage	V _{GS(th)}	0.4	-	1.0	V	V _{DS} = V _{GS} , I _D = 50μA
Static Drain-Source On-Resistance	R _{DS(on)}	-	-	90	mΩ	V _{GS} = 4.5V, I _D = 3.6A
				120		V _{GS} = 2.5V, I _D = 3.1A
Forward Transfer Admittance	Y _{fs}	-	13	-	S	V _{DS} = 5V, I _D = 3.6A
Diode Forward Voltage	V _{SD}	-	0.75	1.0	V	V _{GS} = 0V, I _S = 1A
DYNAMIC CHARACTERISTICS (Note 6)						
Input Capacitance	C _{iss}	-	594.3	-	pF	V _{DS} = 10V, V _{GS} = 0V, f = 1.0MHz
Output Capacitance	C _{oss}	-	64.5	-	pF	
Reverse Transfer Capacitance	C _{rss}	-	57.7	-	pF	
Gate Resistance	R _g	-	1.5	-	Ω	V _{DS} = 0V, V _{GS} = 0V, f = 1MHz
Total Gate Charge	Q _g	-	7.0	-	nC	V _{GS} = 4.5V, V _{DS} = 10V, I _D = 3.6A
Gate-Source Charge	Q _{gs}	-	0.9	-	nC	
Gate-Drain Charge	Q _{gd}	-	1.4	-	nC	
Turn-On Delay Time	t _{D(on)}	-	7.4	-	ns	V _{DD} = 10V, V _{GS} = 4.5V, R _L = 2.78Ω, R _G = 1.0Ω
Turn-On Rise Time	t _r	-	9.8	-	ns	
Turn-Off Delay Time	t _{D(off)}	-	28.1	-	ns	
Turn-Off Fall Time	t _f	-	6.7	-	ns	

Notes: 4. Short duration pulse test used to minimize self-heating effect.
5. Guaranteed by design. Not subject to production testing.