

Features

- Low On-Resistance
- Low Gate Threshold Voltage
- Low Input Capacitance
- Fast Switching Speed
- **Lead Free By Design/RoHS Compliant (Note 2)**
- **ESD Protected Gate**
- **"Green" Device (Note 4)**
- **Qualified to AEC-Q101 standards for High Reliability**

Mechanical Data

- Case: SC59
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture sensitivity: Level 1 per J-STD-020C
- Terminals: Finish — Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Weight: 0.014 grams (approximate)

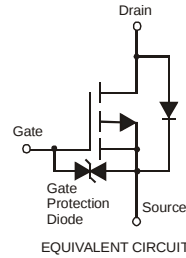


ESD protected

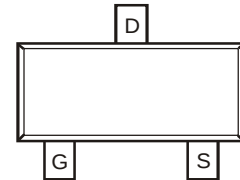


TOP VIEW

SC59



EQUIVALENT CIRCUIT



Internal Schematic

Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Drain-Source Voltage	V _{DSS}	-30	V
Gate-Source Voltage	V _{GSS}	±20	V
Drain Current (Note 1) Steady State	I _D	-0.7	A
Pulsed Drain Current (Note 3)	I _{DM}	-2.8	A

Thermal Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Total Power Dissipation (Note 1)	P _d	500	mW
Thermal Resistance, Junction to Ambient	R _{θJA}	250	°C/W
Operating and Storage Temperature Range	T _j , T _{STG}	-65 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}	-30	—	—	V	V _{GS} = 0V, I _D = -250μA
Zero Gate Voltage Drain Current	I _{DSS}	—	—	-10	μA	V _{DS} = -30V, V _{GS} = 0V
Gate-Body Leakage	I _{GSS}	—	—	±10	μA	V _{GS} = ±20V, V _{DS} = 0V
ON CHARACTERISTICS (Note 5)						
Gate Threshold Voltage	V _{GS(th)}	-1.0	—	-3.0	V	V _{DS} = -10V, I _D = -1.0mA
Static Drain-Source On-Resistance	R _{DS (ON)}	—	0.20 0.35	0.25 0.45	Ω	V _{GS} = -10V, I _D = -0.4A V _{GS} = -4.5V, I _D = -0.4A
Forward Transfer Admittance	Y _{fs}	—	1	—	S	V _{DS} = -10V, I _D = -0.4A
Diode Forward Voltage (Note 5)	V _{SD}	—	-0.8	-1.1	V	V _{GS} = 0V, I _S = -0.7A
DYNAMIC CHARACTERISTICS						
Input Capacitance	C _{iss}	—	160	—	pF	V _{DS} = -10V, V _{GS} = 0V f = 1.0MHz
Output Capacitance	C _{oss}	—	120	—	pF	
Reverse Transfer Capacitance	C _{rss}	—	50	—	pF	
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	t _{D(ON)}	—	10	—	ns	V _{DD} = -10V, I _D = -0.4A, V _{GS} = -5.0V, R _{GEN} = 50Ω
Turn-Off Delay Time	t _{D(OFF)}	—	25	—	ns	
Turn-On Rise Time	t _r	—	25	—	ns	
Turn-Off Fall Time	t _f	—	40	—	ns	

- Notes:
1. Device mounted on FR-4 PCB.
 2. No purposefully added lead.
 3. Pulse width ≤10μS, Duty Cycle ≤1%.