

Features

- Low $R_{DS(ON)}$:
 - $65m\Omega$ @ $V_{GS} = -10V$
 - $115m\Omega$ @ $V_{GS} = -4.5V$
- Low Input/Output Leakage
- **Lead Free By Design/RoHS Compliant (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **"Green" Device (Note 4)**

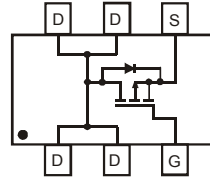
Mechanical Data

- Case: SOT-26
- Case Material - Molded Plastic. UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminals: Finish - Matte Tin Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Marking Information: See Page 4
- Ordering Information: See page 4
- Weight: 0.008 grams (approximate)



TOP VIEW

SOT-26


 TOP VIEW
Internal Schematic

Maximum Ratings @ $T_A = 25^\circ C$ 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) Continuous	I_D	-4.0 -3.0	A
Pulsed Drain Current (Note 2)	I_{DM}	-14	A

Thermal Characteristics

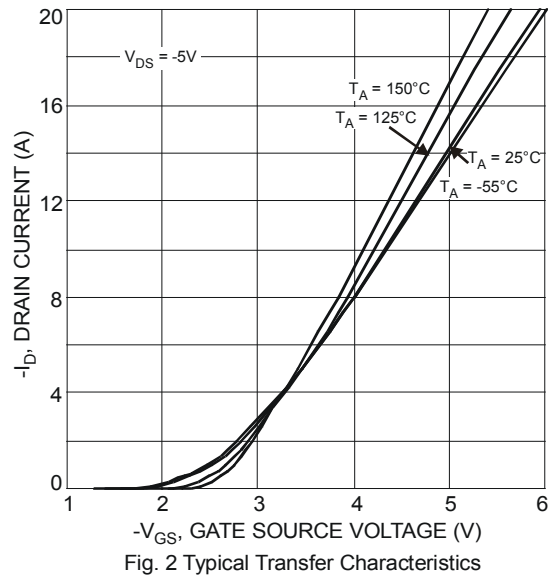
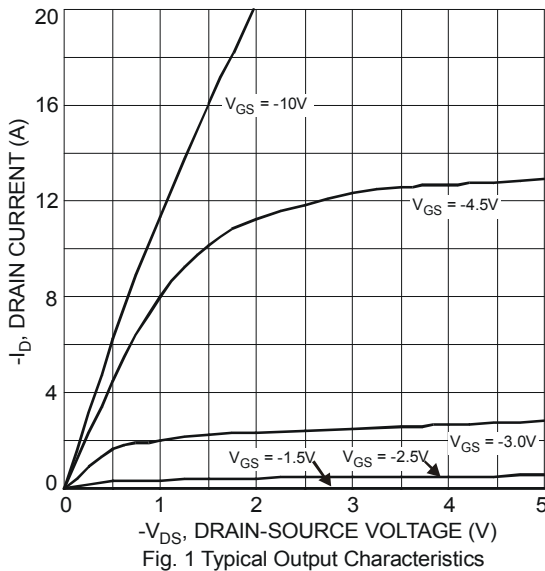
Characteristic	Symbol	Value	Unit
Total Power Dissipation (Note 1)	P_D	1.25	W
Thermal Resistance, Junction to Ambient (Note 1); Steady-State	$R_{\theta JA}$	100	$^\circ C/W$
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ C$

- Notes:
1. Device mounted on 1"x1", FR-4 PC board on 0.1in.² pads on 2 oz. Copper pads and test pulse width $t \leq 10s$.
 2. Repetitive Rating, pulse width limited by junction temperature.
 3. No purposefully added lead.
 4. Diodes Inc's "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.

Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
STATIC PARAMETERS						
Drain-Source Breakdown Voltage	BV_{DSS}	-30	—	—	V	$I_D = -250\mu\text{A}, V_{GS} = 0\text{V}$
Zero Gate Voltage Drain Current	I_{DSS}	—	—	-1	μA	$V_{DS} = -30\text{V}, V_{GS} = 0\text{V}$ $T_J = 25^\circ\text{C}$
Gate-Body Leakage Current	I_{GSS}	—	—	± 100	nA	$V_{DS} = 0\text{V}, V_{GS} = \pm 20\text{V}$
Gate Threshold Voltage	$V_{GS(th)}$	-1.0	—	-2.1	V	$V_{DS} = V_{GS}, I_D = -250\mu\text{A}$
On State Drain Current (Note 5)	$I_{D(ON)}$	-15	—	—	A	$V_{GS} = -4.5\text{V}, V_{DS} = -5\text{V}$
Static Drain-Source On-Resistance (Note 5)	$R_{DS(ON)}$	—	56 98	65 115	m Ω	$V_{GS} = -10\text{V}, I_D = -4.0\text{A}$ $V_{GS} = -4.5\text{V}, I_D = -3.0\text{A}$
Forward Transconductance (Note 5)	g_{FS}	—	5.3	—	S	$V_{DS} = -10\text{V}, I_D = -4.0\text{A}$
Diode Forward Voltage (Note 5)	V_{SD}	—	0.79	-1.2	V	$I_S = -1.7\text{A}, V_{GS} = 0\text{V}$
DYNAMIC PARAMETERS (Note 6)						
Input Capacitance	C_{iss}	—	336	—	pF	$V_{DS} = -25\text{V}, V_{GS} = 0\text{V}$ $f = 1.0\text{MHz}$
Output Capacitance	C_{oss}	—	70	—	pF	
Reverse Transfer Capacitance	C_{rss}	—	49	—	pF	$V_{DS} = 0\text{V}, V_{GS} = 0\text{V}, f = 1.0\text{MHz}$
Gate Resistance	R_G	—	4.6	—	Ω	
SWITCHING CHARACTERISTICS						
Total Gate Charge	Q_g	—	4.0 7.8	—	nC	$V_{DS} = -15\text{V}, V_{GS} = -4.5\text{V}, I_D = -5.0\text{A}$ $V_{DS} = -15\text{V}, V_{GS} = -10\text{V}, I_D = -5.0\text{A}$
Gate-Source Charge	Q_{gs}	—	1.0	—		$V_{DS} = -15\text{V}, V_{GS} = -4.5\text{V}, I_D = -5.0\text{A}$
Gate-Drain Charge	Q_{gd}	—	2.5	—		$V_{DS} = -15\text{V}, V_{GS} = -4.5\text{V}, I_D = -5.0\text{A}$
Turn-On Delay Time	$t_{d(on)}$	—	6.0	—	ns	$V_{DS} = -15\text{V}, V_{GS} = -10\text{V},$ $I_D = -1.0\text{A}, R_G = 6.0\Omega$
Rise Time	t_r	—	5.0	—		
Turn-Off Delay Time	$t_{d(off)}$	—	17.6	—		
Fall Time	t_f	—	9.5	—		

Notes: 5. Test pulse width $t = 300\mu\text{s}$.
6. Guaranteed by design. Not subject to production testing.



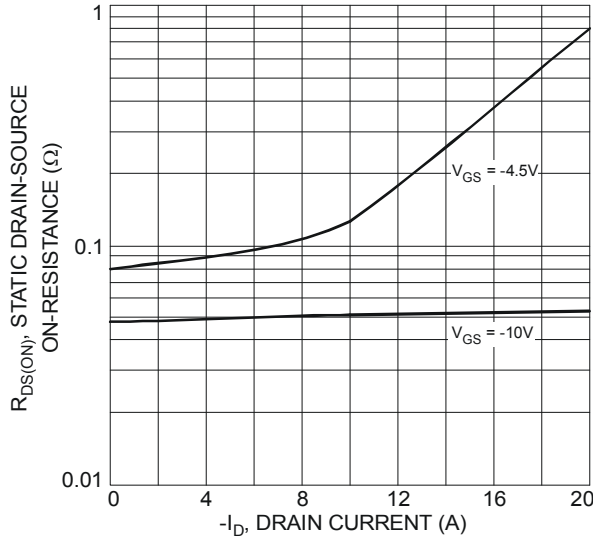


Fig. 3 Typical On-Resistance vs. Drain Current and Gate Voltage

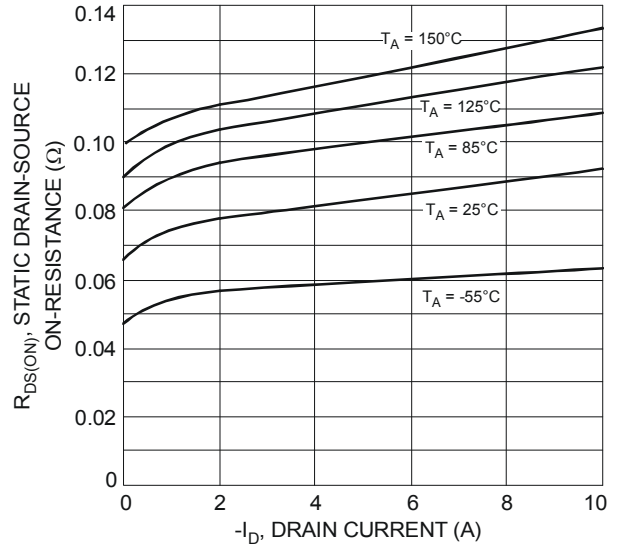


Fig. 4 Typical On-Resistance vs. Drain Current and Temperature

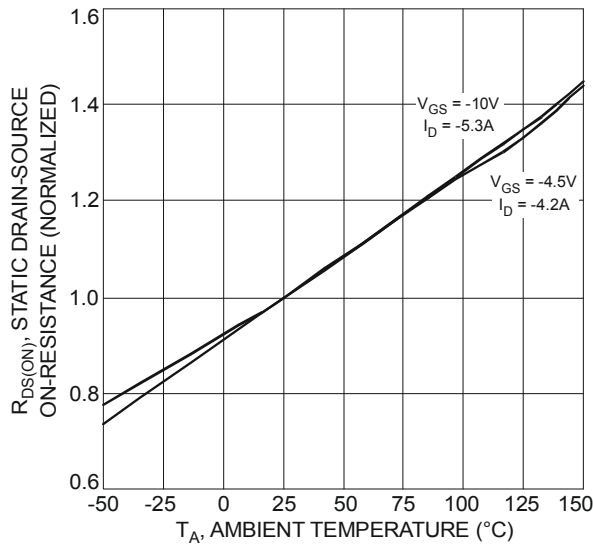


Fig. 5 On-Resistance Variation with Temperature

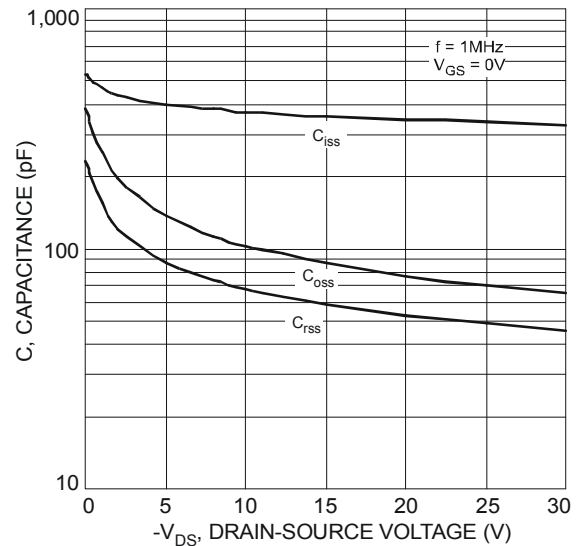


Fig. 6 Typical Capacitance

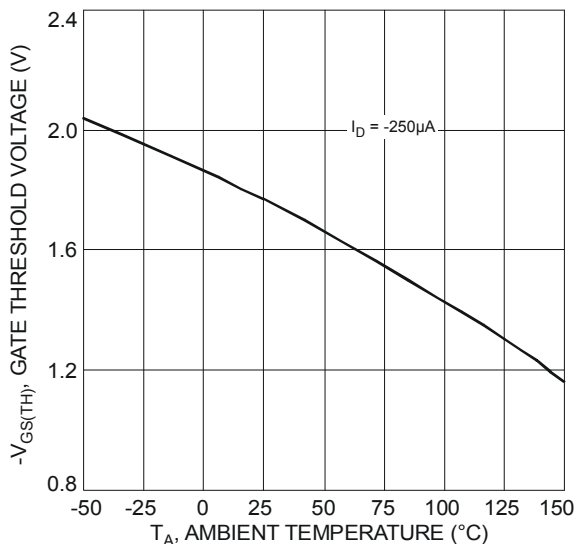


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

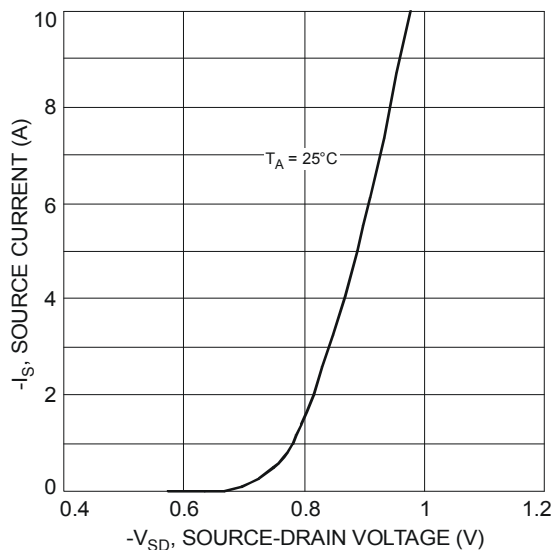


Fig. 8 Diode Forward Voltage vs. Current