

Features

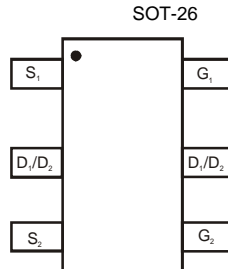
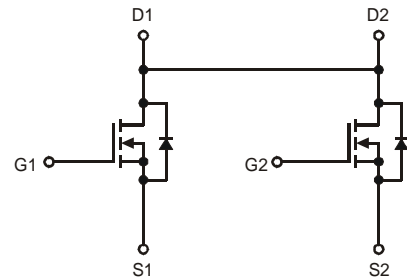
- Low Gate Charge
- Low $R_{DS(ON)}$:
 - $28m\Omega$ @ $V_{GS} = 4.5V$
 - $32m\Omega$ @ $V_{GS} = 2.5V$
 - $40m\Omega$ @ $V_{GS} = 1.8V$
- Low Input/Output Leakage
- **Lead Free By Design/RoHS Compliant (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **"Green" Device (Note 4)**

Mechanical Data

- Case: SOT-26
- Case Material - Molded Plastic, "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
- Terminal Connections: See Diagram
- Marking Information: See Page 4
- Ordering Information: See Page 4
- Weight: 0.008 grams (approximate)



TOP VIEW


 TOP VIEW
Pin Configuration


Equivalent Circuit

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

Characteristic	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	20	V
Gate-Source Voltage	V_{GSS}	± 8	V
Drain Current (Note 1) Continuous	I_D	4.2	A
		3.2	A
Pulsed Drain Current (Note 2)	I_{DM}	30	A

Thermal Characteristics @ $T_A = 25^\circ C$ unless otherwise specified

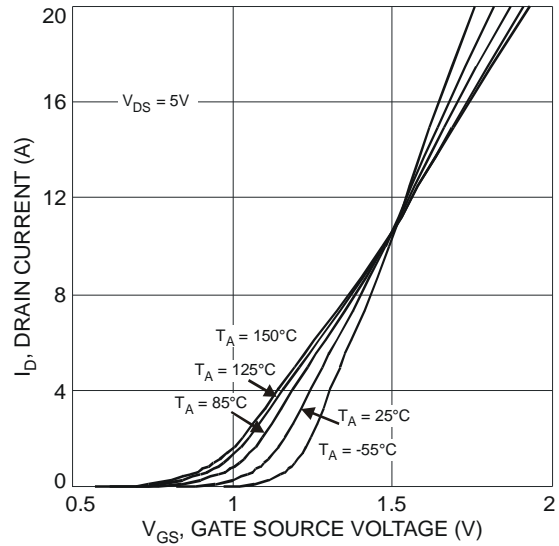
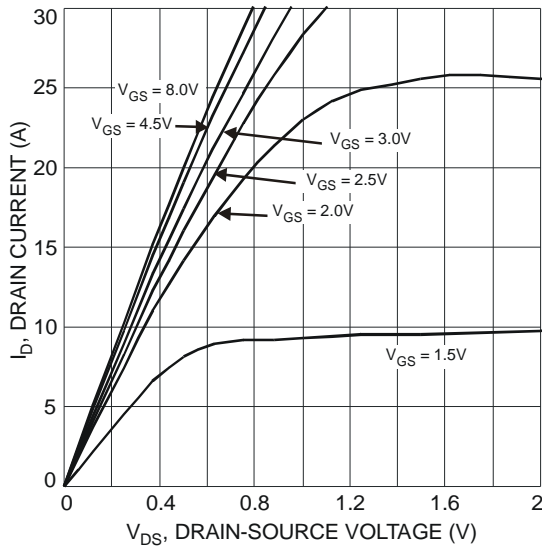
Characteristic	Symbol	Value	Unit
Total Power Dissipation (Note 1)	P_D	0.98	W
Thermal Resistance, Junction to Ambient (Note 1) $t \leq 10s$	$R_{\theta JA}$	128	$^\circ C/W$
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ C$

- Notes:
1. Device mounted on 1"x1", FR-4 PC board with 2 oz. Copper 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°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
STATIC CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	20	—	—	V	I _D = 250μA, V _{GS} = 0V
Zero Gate Voltage Drain Current	I _{DSS}	—	—	1	μA	V _{DS} = 20V, V _{GS} = 0V
Gate-Body Leakage Current	I _{GSS}	—	—	±100	nA	V _{DS} = 0V, V _{GS} = ±8V
Gate Threshold Voltage	V _{GS(th)}	0.5	—	0.9	V	V _{DS} = V _{GS} , I _D = 250μA
Static Drain-Source On-Resistance (Note 5)	R _{DS(ON)}	—	22	28	mΩ	V _{GS} = 4.5V, I _D = 8.2A
			25	32		V _{GS} = 2.5V, I _D = 3.3A
			31	40		V _{GS} = 1.8V, I _D = 2.0A
Forward Transfer Admittance	Y _{FS}	—	7	—	S	V _{DS} = 10V, I _D = 4A
Diode Forward Voltage (Note 5)	V _{SD}	—	0.7	0.9	V	I _S = 2.25A, V _{GS} = 0V
DYNAMIC CHARACTERISTICS (Note 6)						
Input Capacitance	C _{iss}	—	856	—	pF	V _{DS} = 10V, V _{GS} = 0V f = 1.0MHz
Output Capacitance	C _{oss}	—	83	—	pF	
Reverse Transfer Capacitance	C _{rss}	—	78	—	pF	V _{GS} = 0V, V _{DS} = 0V, f = 1MHz
Gate Resitance	R _G	—	1.32	—	Ω	
SWITCHING CHARACTERISTICS						
Total Gate Charge	Q _g	—	8.3	—	nC	V _{GS} = 4.5V, V _{DS} = 10V, I _D = 8.2A
Gate-Source Charge	Q _{gs}	—	1.3	—	nC	
Gate-Drain Charge	Q _{gd}	—	3.1	—	nC	
Turn-On Delay Time	t _{D(on)}	—	8.4	—	ns	V _{DD} = 10V, V _{GS} = 4.5V, R _L = 10Ω, R _G = 6Ω
Turn-On Rise Time	t _r	—	8.2	—	ns	
Turn-Off Delay Time	t _{D(off)}	—	40.4	—	ns	
Turn-Off Fall Time	t _f	—	8.9	—	ns	

Notes: 5. Test pulse width t = 300ms.
6. Guaranteed by design. Not subject to production testing.



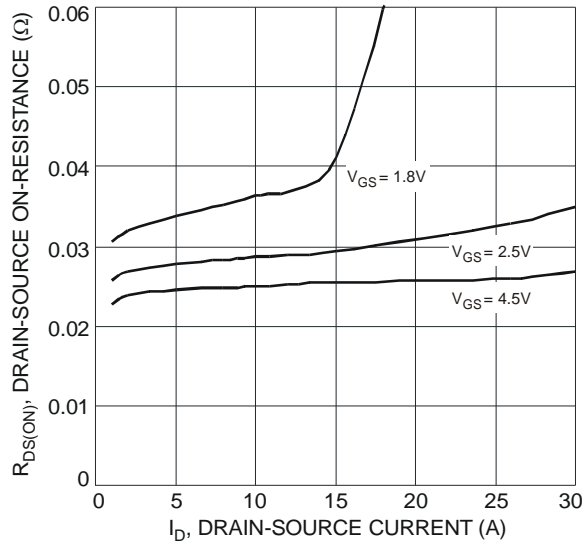


Fig. 3 Typical On-Resistance vs. Drain Current and Gate Voltage

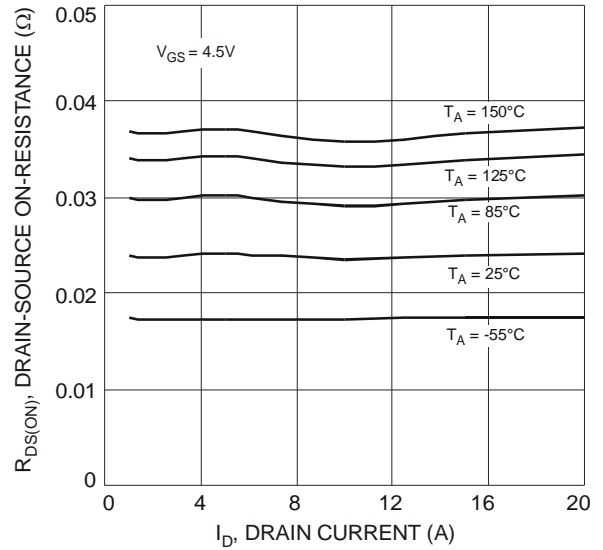


Fig. 4 Typical Drain-Source On-Resistance vs. Drain Current and Temperature

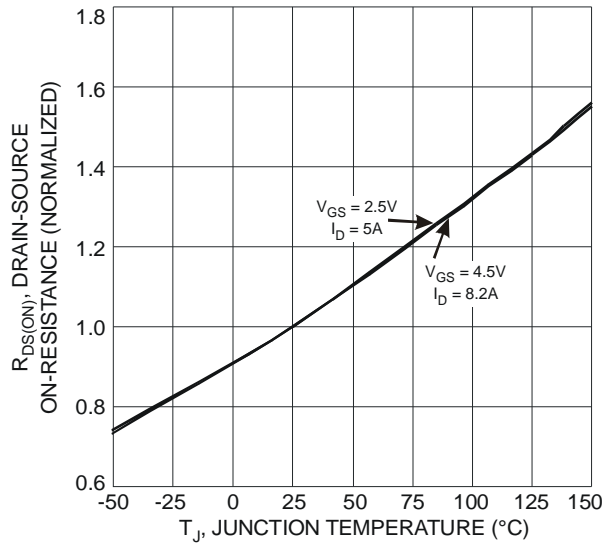


Fig. 5 On-Resistance Variation with Temperature

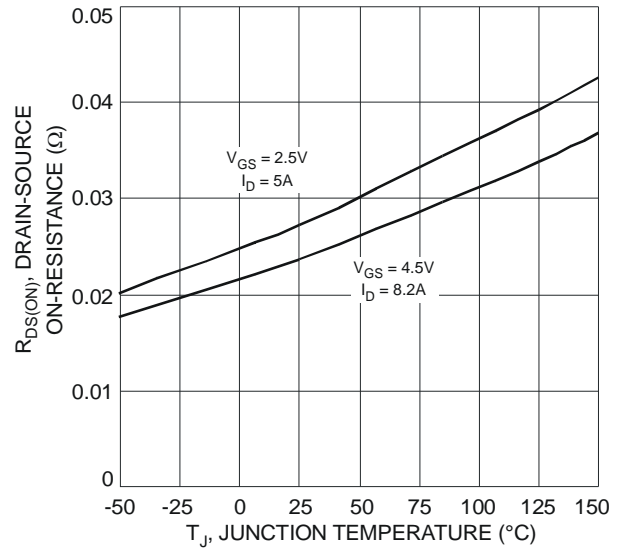


Fig. 6 On-Resistance Variation with Temperature

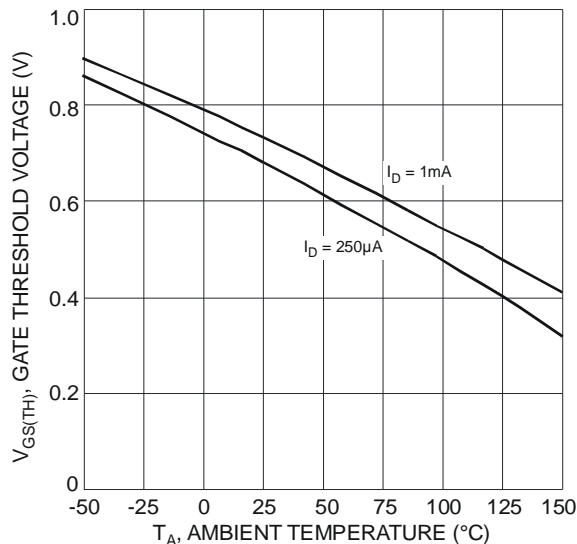


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

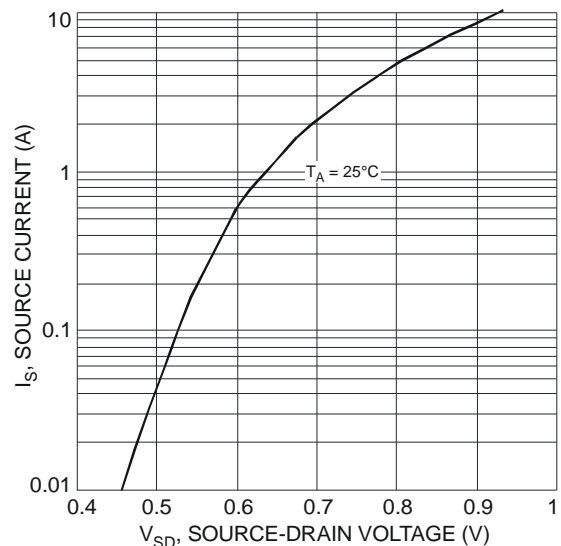
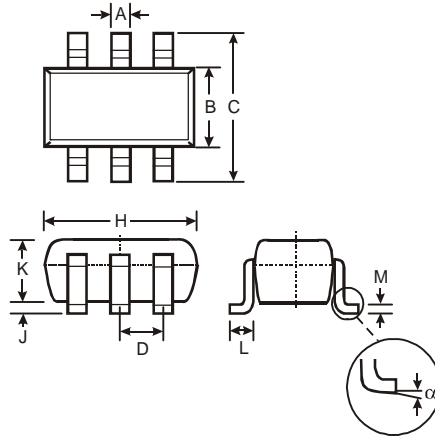


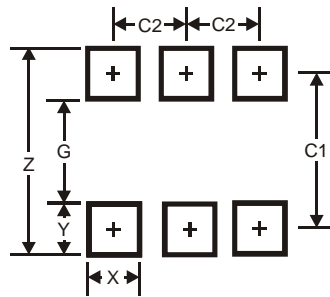
Fig. 8 Diode Forward Voltage vs. Current

Package Outline Dimensions



SOT-26			
Dim	Min	Max	Typ
A	0.35	0.50	0.38
B	1.50	1.70	1.60
C	2.70	3.00	2.80
D	—	—	0.95
H	2.90	3.10	3.00
J	0.013	0.10	0.05
K	1.00	1.30	1.10
L	0.35	0.55	0.40
M	0.10	0.20	0.15
α	0°	8°	—
All Dimensions in mm			

Suggested Pad Layout



Dimensions	Value (in mm)
Z	3.20
G	1.60
X	0.55
Y	0.80
C1	2.40
C2	0.95

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