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}	±8	V
Continuous Drain Current (Note 4) V_{GS} = -4.5V	Steady State	T_A = +25°C T_A = +70°C	I_D	-2.5 -2.0	A
Continuous Drain Current (Note 5) V_{GS} = -4.5V	Steady State	T_A = +25°C T_A = +70°C	I_D	-3.5 -2.8	A
Pulsed Drain Current **(Note 6)**			I_{DM}	-12	A
Maximum Continuous Body Diode Forward Current (Note 5)			I_S	-1.8	A

Thermal Characteristics (@T_A = +25°C unless otherwise specified.)

Characteristic	Symbol	Value	Units
Total Power Dissipation (Note 4)	P_D	0.92	W
Total Power Dissipation (Note 5)	P_D	1.47	W
Thermal Resistance, Junction to Ambient (Note 4)	$R_{\theta JA}$	136	°C/W
Thermal Resistance, Junction to Ambient (Note 5)	$R_{\theta JA}$	84	°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 7)							
Drain-Source Breakdown Voltage		BV_{DSS}	-20	-	-	V	V_{GS} = 0V, I_D = -250µA
Zero Gate Voltage Drain Current	@T_C = +25°C	I_{DSS}	-	-	-1	µA	V_{DS} = -16V, V_{GS} = 0V
Gate-Source Leakage		I_{GSS}	-	-	±100	nA	V_{GS} = ±8V, V_{DS} = 0V
ON CHARACTERISTICS (Note 7)							
Gate Threshold Voltage		$V_{GS(th)}$	-0.4	-0.6	-1.0	V	V_{DS} = V_{GS}, I_D = -250µA
Static Drain-Source On-Resistance		$R_{DS\ (ON)}$	-	55	70	mΩ	V_{GS} = -4.5V, I_D = - 1A
				70	90		V_{GS} = -2.5V, I_D = -1A
				90	110		V_{GS} = -1.8V, I_D = -1A
				110	150		V_{GS} = -1.5V, I_D = -1A
Forward Transfer Admittance		$\|Y_{fs}\|$	-	12	-	S	V_{DS} = -10V, I_D = -1A
Diode Forward Voltage (Note 5)		V_{SD}	-	-0.7	-1	V	V_{GS} = 0V, I_S = -1A
DYNAMIC CHARACTERISTICS (Note 8)							
Input Capacitance		C_{iss}	-	210	-	pF	V_{DS} = -10V, V_{GS} = 0V, f = 1.0MHz
Output Capacitance		C_{oss}	-	92	-	pF	
Reverse Transfer Capacitance		C_{rss}	-	38	-	pF	
Series Gate Resistance		R_G		5.3	-	Ω	V_{DS} = 0V, V_{GS} = 0V, f = 1MHz
Total Gate Charge (4.5V)		Q_g	-	2.9	-	nC	V_{GS} = -4.5V, V_{DS} = -10V, I_D = -1A ,
Gate-Source Charge		Q_{gs}	-	0.3	-	nC	
Gate-Drain Charge		Q_{gd}	-	0.5	-	nC	
Turn-On Delay Time		$t_{D(on)}$	-	7.3	-	ns	V_{DD} = -10V, V_{GS} = -4.5V, I_{DS} = -1A, R_G = 20Ω,
Turn-On Rise Time		t_r	-	14.0	-	ns	
Turn-Off Delay Time		$t_{D(off)}$	-	42.6	-	ns	
Turn-Off Fall Time		t_f	-	32	-	ns	

Notes:
4. Device mounted on FR-4 PCB with minimum recommended pad layout.
5. Device mounted on FR4 material with 1-inch^2 (6.45-cm^2), 2-oz. (0.071-mm thick) Cu.
6. 300ms pulse, pulse duty cycle ≤ 2%.
7. Short duration pulse test used to minimize self-heating effect.
8. Guaranteed by design. Not subject to production testing.

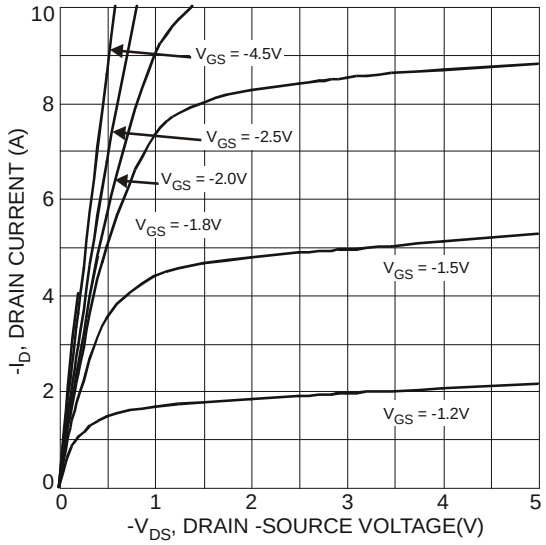


Fig. 1 Typical Output Characteristics

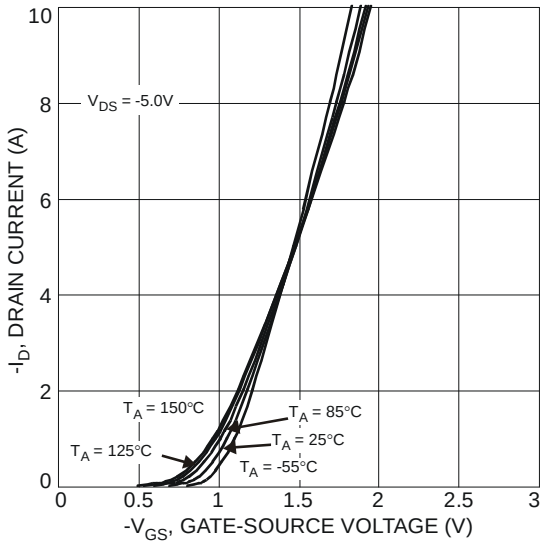


Fig. 2 Typical Transfer Characteristics

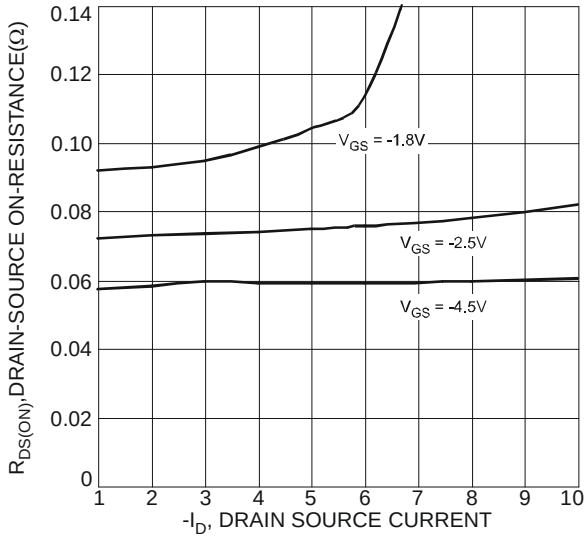


Fig. 3 Typical On-Resistance vs. Drain Current and Gate Voltage

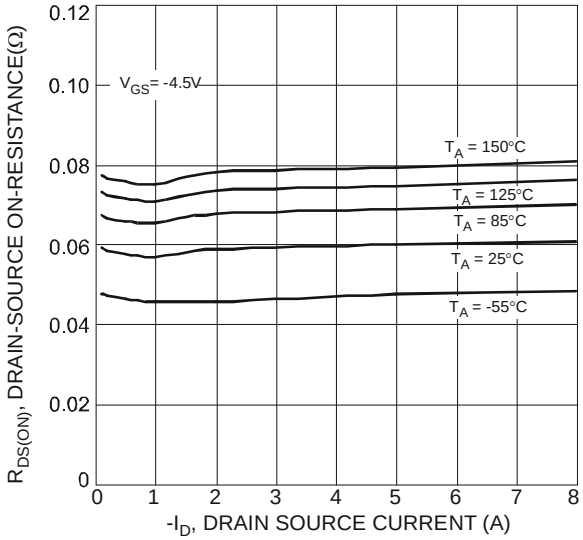


Fig. 4 Typical On-Resistance vs. Drain Current and Temperature

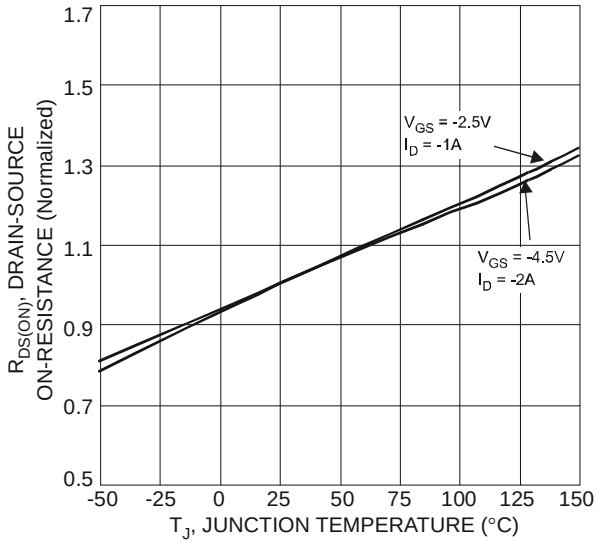


Fig. 5 On-Resistance Variation with Temperature

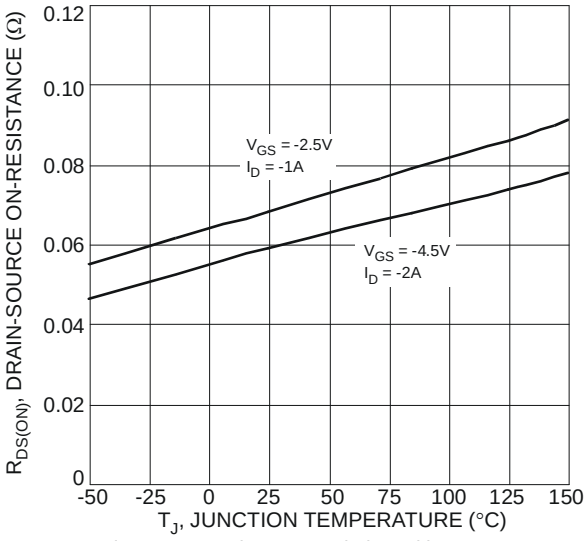


Fig. 6 On-Resistance Variation with Temperature

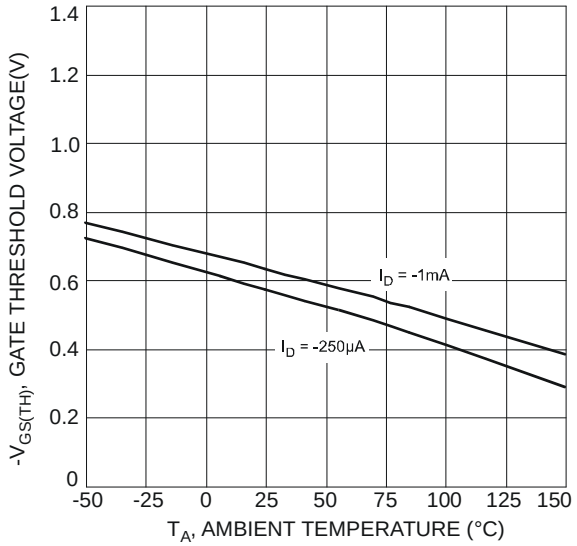


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

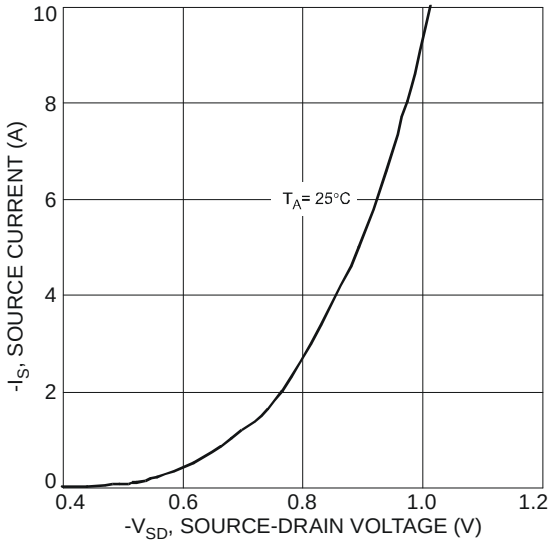


Fig. 8 Diode Forward Voltage vs. Current

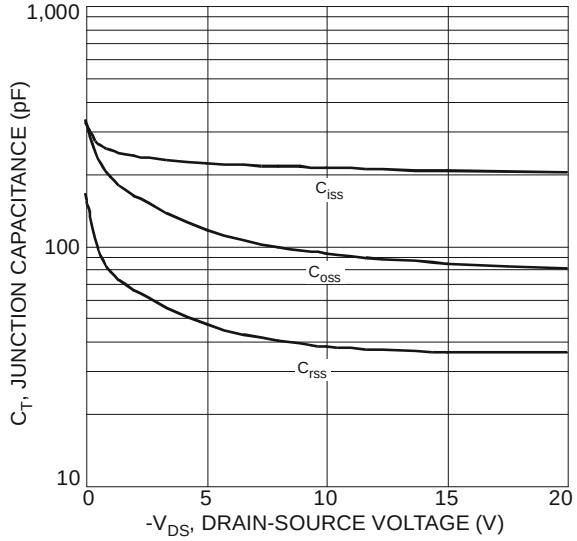


Fig. 9 Typical Junction Capacitance

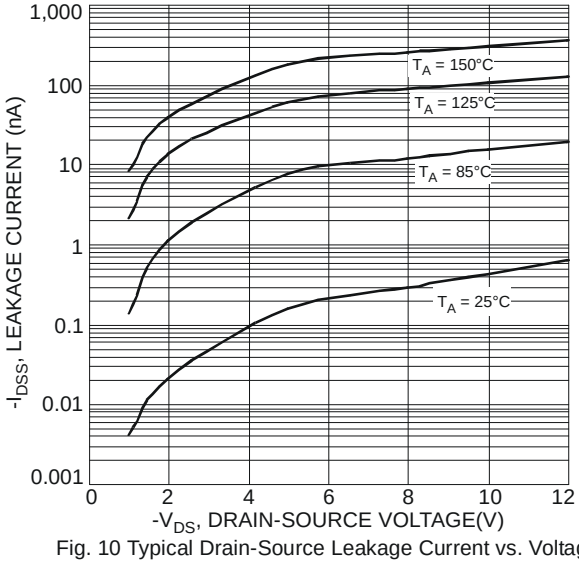


Fig. 10 Typical Drain-Source Leakage Current vs. Voltage

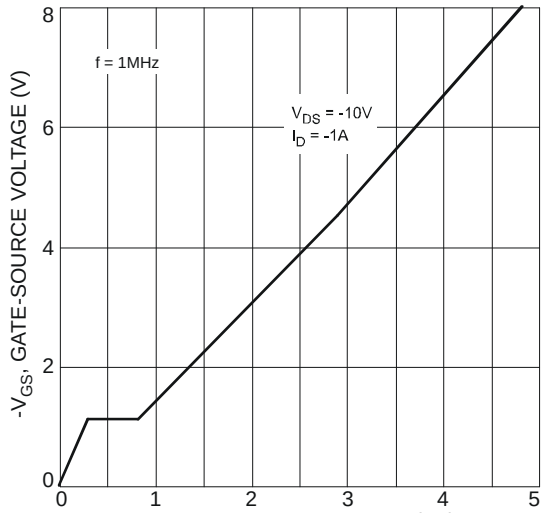


Fig. 11 Gate-Charge Characteristics

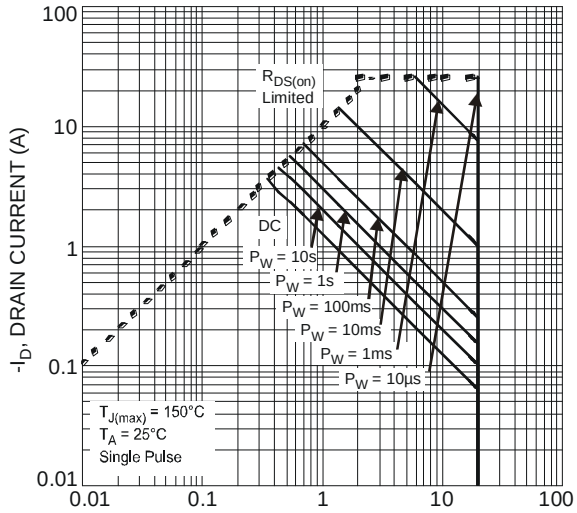


Fig. 12 SOA, Safe Operation Area

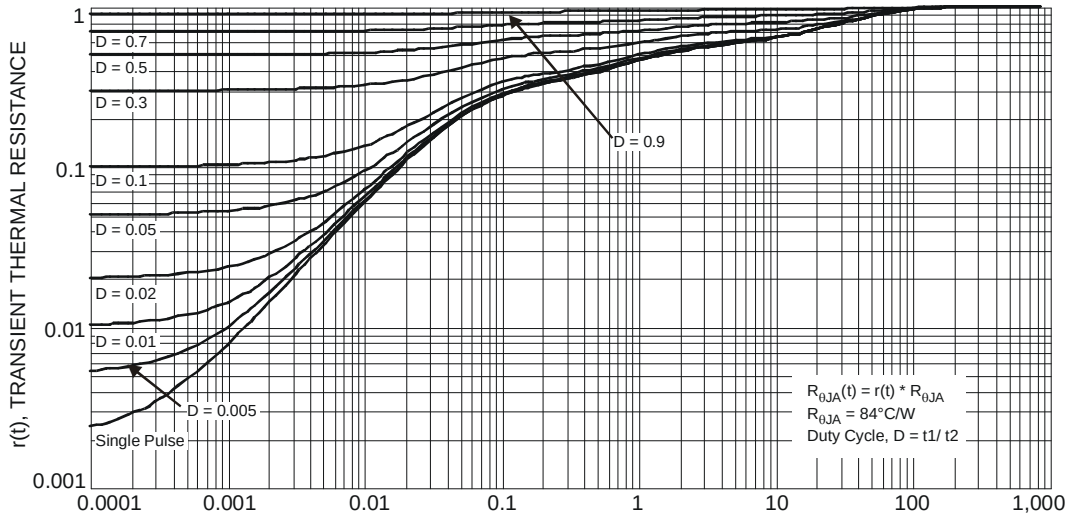
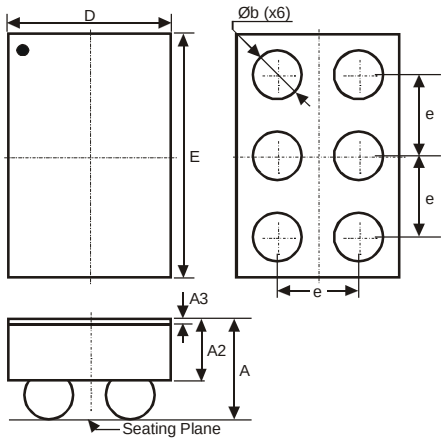


Fig. 13 Transient Thermal Resistance

Package Outline Dimensions

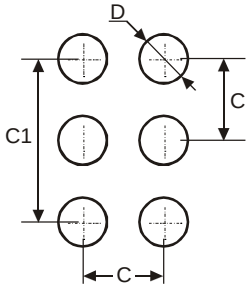
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for the latest version.



U-WLB1510-6			
Dim	**Min**	**Max**	**Typ**
D	0.90	1.00	1.00
E	1.40	1.50	1.50
A	–	0.62	–
A2	–	–	0.38
A3	0.020	0.030	0.025
b	0.27	0.37	0.32
e	–	–	0.50
All Dimensions in mm			

Suggested Pad Layout

Please see AP02001 at http://www.diodes.com/datasheets/ap02001.pdf for the latest version.



Dimensions	Value (in mm)
C	0.50
C1	1.00
D	0.25

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