Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic		Symbol	Value	Unit
Drain-Source Voltage		V_{DSS}	-20	V
Gate-Source Voltage		V_{GSS}	±8	V
Continuous Drain Current (Note 6)	@T_A = +25°C @T_A = +85°C	I_D	-1.7 -1.2	A
Pulsed Drain Current (10µs Pulse, Duty Cycle = 1%)		I_{DM}	-8	A

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

Characteristic		Symbol	Value	Unit
Total Power Dissipation	(Note 5)	P_D	0.66	W
	(Note 6)		1.58	W
Thermal Resistance, Junction to Ambient	(Note 5)	$R_{\theta JA}$	193	°C/W
	(Note 6)		80	
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	I_{DSS}	—	—	-1	µA	V_{DS} = -20V, V_{GS} = 0V
Gate-Body Leakage	I_{GSS}	—	—	±10	µA	V_{GS} = ±8V, V_{DS} = 0V
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	$V_{GS(TH)}$	-0.4	—	-1.2	V	V_{DS} = V_{GS}, I_D = -250µA
Static Drain-Source On-Resistance	$R_{DS(ON)}$	—	153 220 260 360	200 290 390 650	mΩ	V_{GS} = -4.5V, I_D = -2.0A V_{GS} = -2.5V, I_D = -1.2A V_{GS} = -1.8V, I_D = -0.24A V_{GS} = -1.5V, I_D = -0.18A
Diode Forward Voltage (Note 7)	V_{SD}	—	—	-1.2	V	V_{GS} = 0V, I_S = -0.6A
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C_{iss}	—	184	—	pF	V_{DS} = -10V, V_{GS} = 0V f = 1.0MHz
Output Capacitance	C_{oss}	—	25.8	—	pF	
Reverse Transfer Capacitance	C_{rss}	—	18.6	—	pF	
Total Gate Charge	Q_g	—	2.2	—	nC	V_{GS} = -4.5V, V_{DS} = -10V, I_D = -1.7A
Gate-Source Charge	Q_{gs}	—	0.4	—	nC	
Gate-Drain Charge	Q_{gd}	—	0.5	—	nC	
SWITCHING CHARACTERISTICS (Note 8)						
Turn-On Delay Time	$t_{D(ON)}$	—	9.8	—	ns	V_{DD} = -10V, I_D = -1.5A, V_{GS} = -4.5V, R_{GEN} = 1Ω
Turn-Off Delay Time	$t_{D(OFF)}$	—	23	—	ns	
Turn-On Rise Time	t_R	—	87	—	ns	
Turn-Off Fall Time	t_F	—	41	—	ns	
Bodyy Diode Reverse Recovery Time	t_{RR}	—	21.5	—	ns	I_F = -2A, di/dt = 100A/µs
Body Diode Reverse Recovery Charge	Q_{RR}	—	4.2	—	nC	

Notes: 5. Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.
6. Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper plate.
7. Short duration pulse test used to minimize self-heating effect.
8. Guaranteed by design. Not subject to product testing.

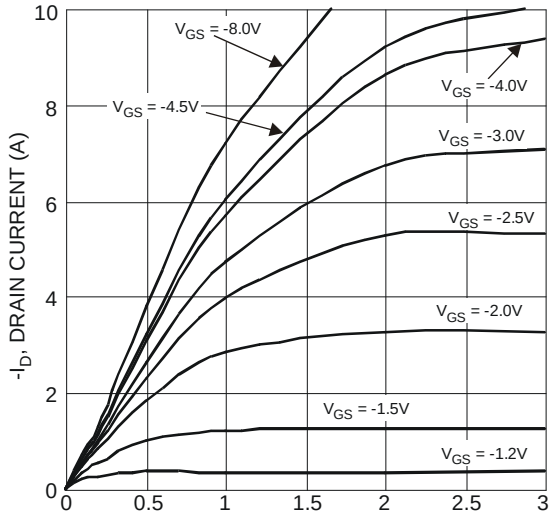

Figure 1 Typical Output Characteristics

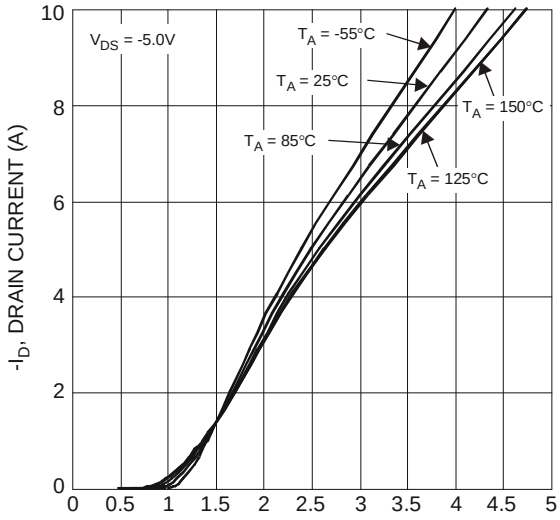

Figure 2 Typical Transfer Characteristics

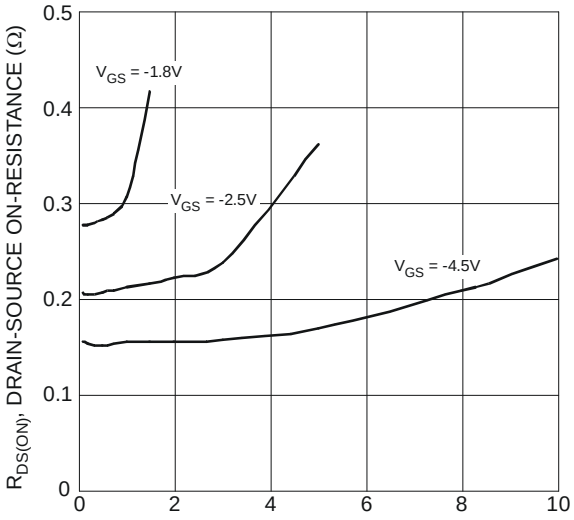

Figure 3 Typical On-Resistance vs. Drain Current and Gate Voltage

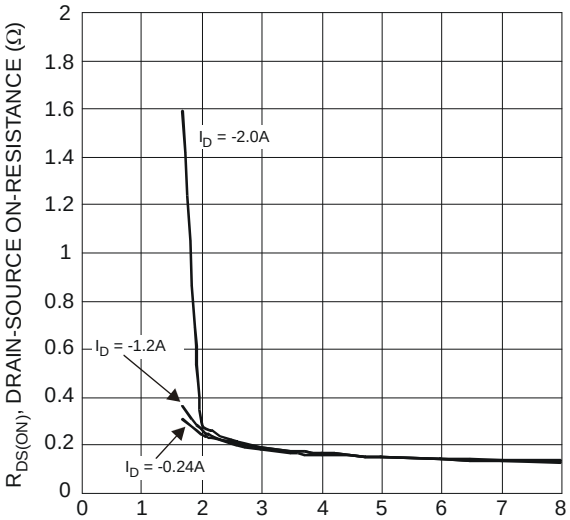

Figure 4 Typical Transfer Characteristics

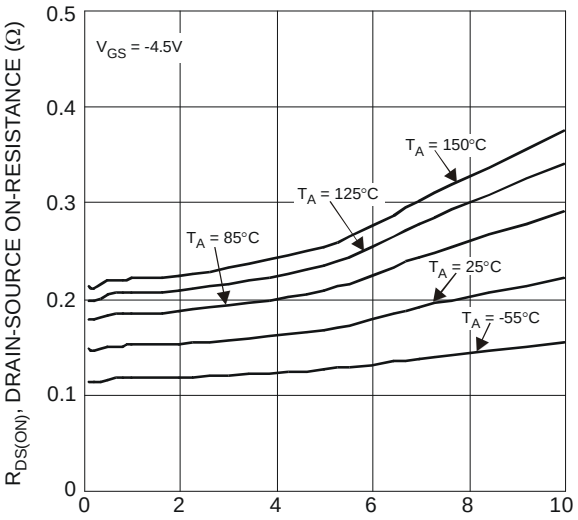

Figure 5 Typical On-Resistance vs. Drain Current and Temperature

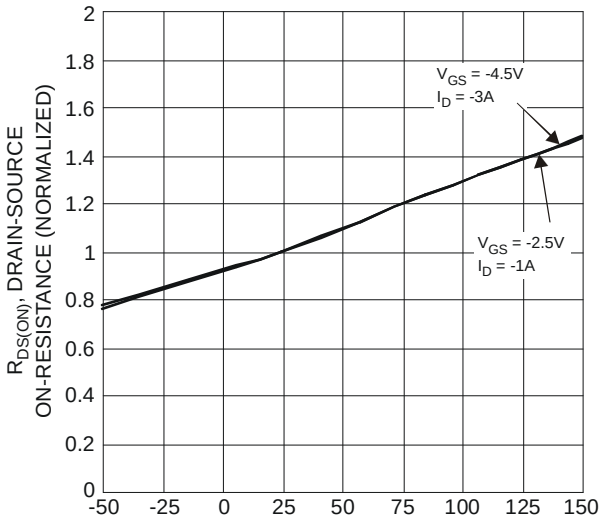

Figure 6 On-Resistance Variation with Temperature

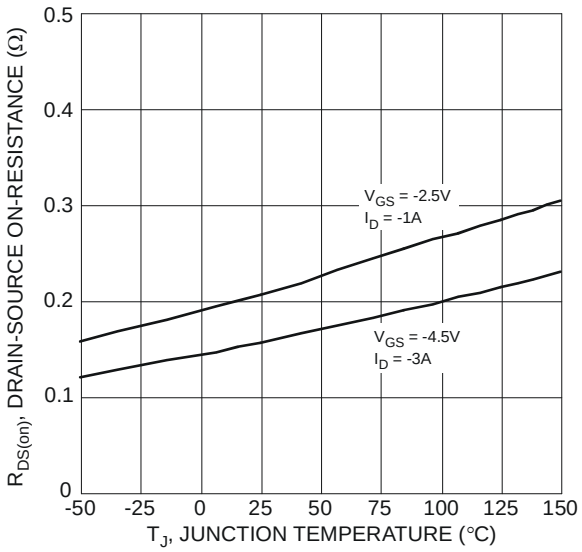

Figure 7 On-Resistance Variation with Temperature

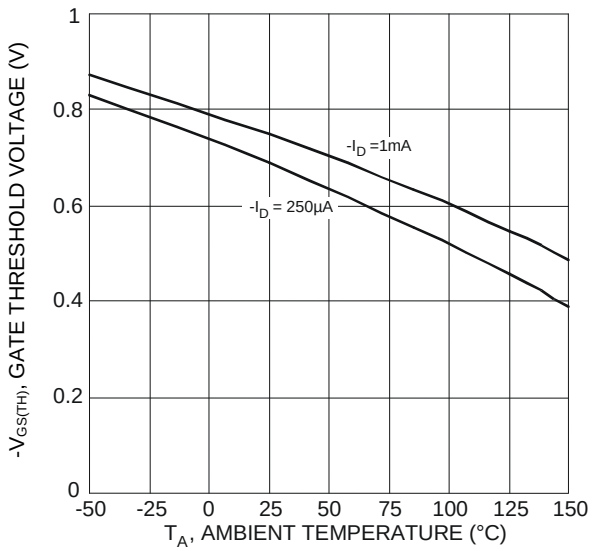

Figure 8 Gate Threshold Variation vs. Ambient Temperature

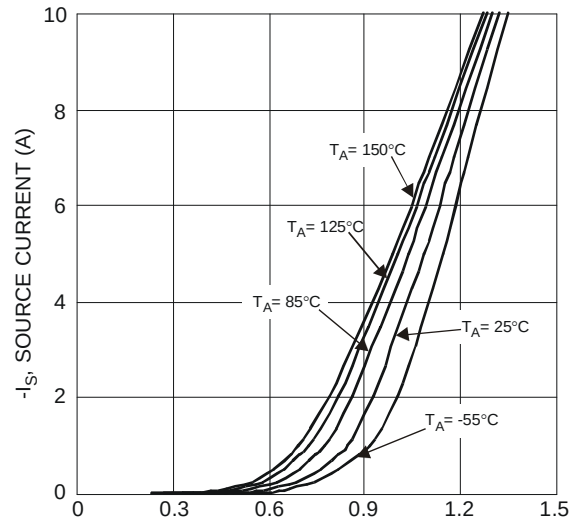

Figure 9 Diode Forward Voltage vs. Current

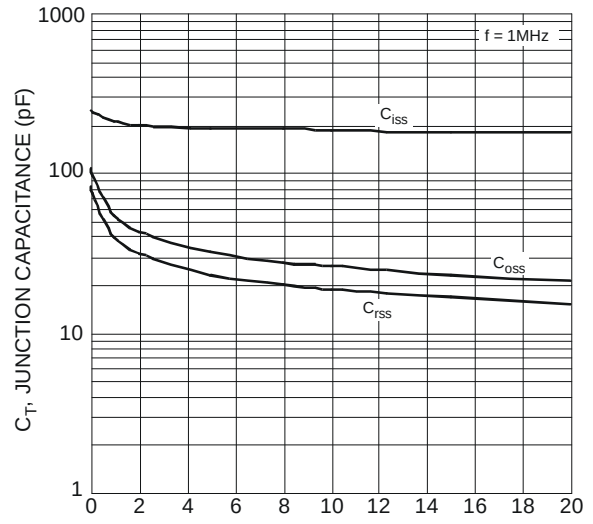

Figure 10 Typical Junction Capacitance

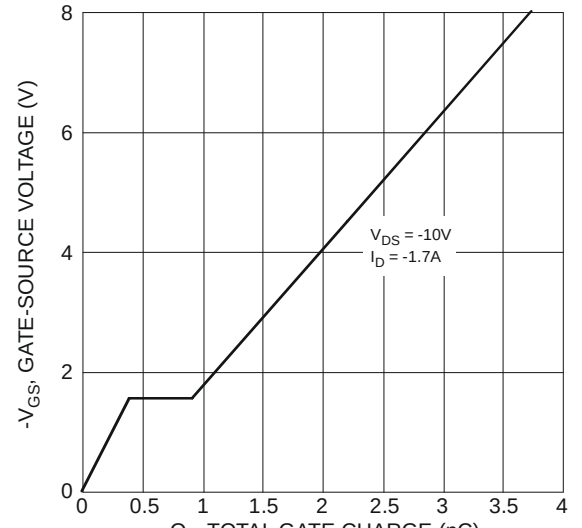

Figure 11 Gate-Charge Characteristics

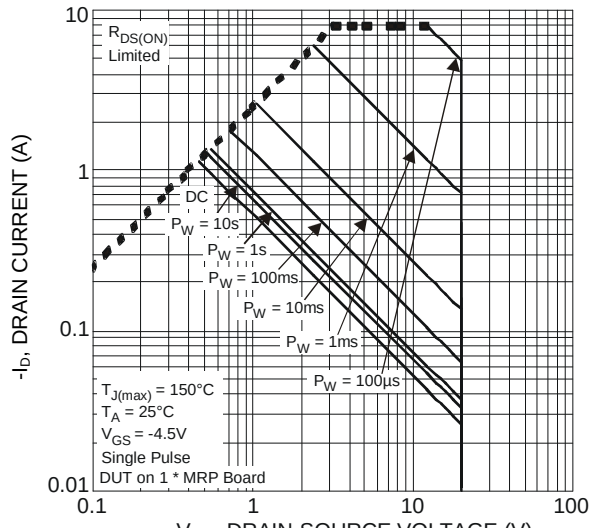

Figure 12 SOA, Safe Operation Area

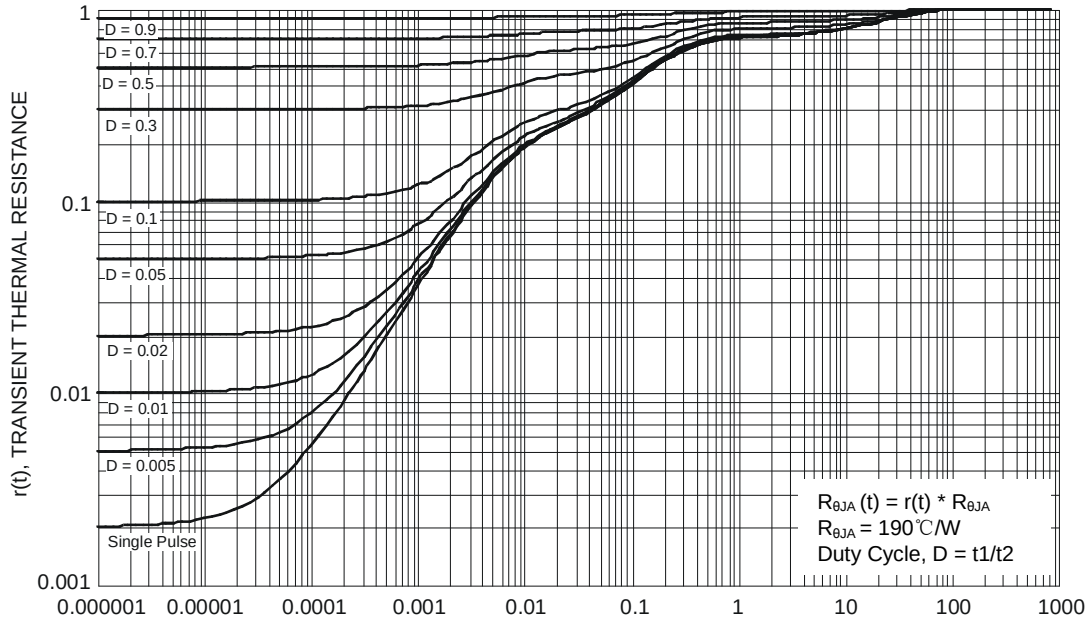

Figure 13 Transient Thermal Resistance

Package Outline Dimensions

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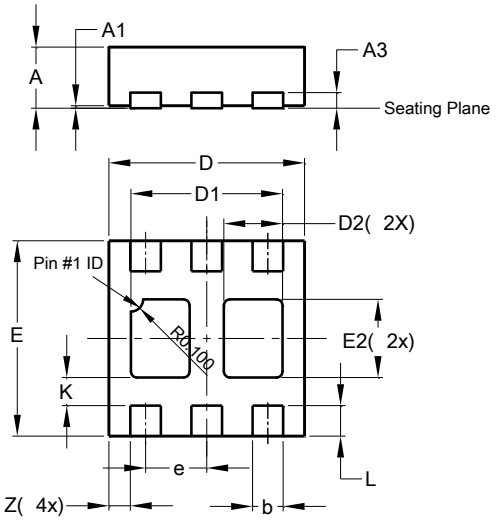
U-DFN1616-6 (Type F)

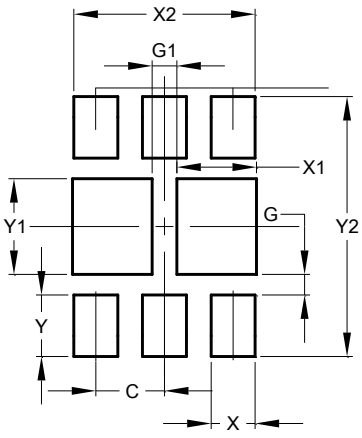


U-DFN1616-6 Type F			
Dim	**Min**	**Max**	**Typ**
A	0.45	0.55	0.50
A1	0	0.05	0.02
A3	—	—	0.127
b	0.20	0.30	0.25
D	1.55	1.65	1.60
D1	1.14	1.34	1.24
D2	0.38	0.58	0.48
E	1.55	1.65	1.60
E2	0.54	0.74	0.64
e	—	—	0.50
K	—	—	0.23
L	0.15	0.35	0.25
Z	—	—	0.175
All Dimensions in mm			

Suggested Pad Layout

Please see http://www.diodes.com/package-outlines.html for the latest version.

U-DFN1616-6 (Type F)



Dimensions	Value (in mm)
C	0.500
G	0.150
G1	0.180
X	0.320
X1	0.580
X2	1.320
Y	0.450
Y1	0.700
Y	1.900

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