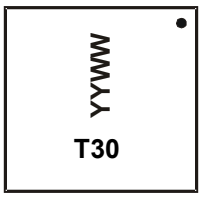
Marking Information

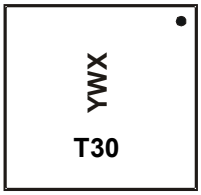
Site 1

V-DFN3030-8 (Type K)



T30= Product Type Marking Code
YYWW = Date Code Marking
YY = Last Two Digits of Year (ex: 20 = 2020)
WW = Week Code (01 to 53)

Site 2



T30= Product Type Marking Code
YWX = Date Code Marking
Y = Year (ex: 0= 2020)
W = Week (ex: a = week 27; z represents week 52 and 53)
X = Internal code (ex: U = Monday)

Date Code Key

Year	2020	2021	2022	2023	2024	2025	2026	2027
Code	0	1	2	3	4	5	6	7

Week	1-26	27-52	53
Code	A-Z	a-z	z

Internal Code	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Code	T	U	V	W	X	Y	Z

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

Characteristic			Symbol	Q1&Q2	Unit
Drain-Source Voltage			V_{DSS}	30	V
Gate-Source Voltage			V_{GSS}	+20, -16	V
Continuous Drain Current (Note 6) V_{GS} = 10V	Steady State (Note 10)	T_C = +25°C T_C = +70°C	I_D	30 25	A
	t<10s	T_A = +25°C T_A = +70°C	I_D	14 11	A
Maximum Body Diode Forward Current (Note 6)			I_S	2.1	A
Pulsed Drain Current (100µs Pulse, Duty Cycle = 1%)			I_{DM}	80	A
Pulsed Body Diode Forward Current (370µs Pulse, Duty Cycle = 1%)			I_{SM}	80	A
Avalanche Current (Note 7) L = 0.1mH			I_{AS}	19.3	A
Avalanche Energy (Note 7) L = 0.1mH			E_{AS}	18.6	mJ

Thermal Characteristics

Characteristic		Symbol	Value	Unit
Total Power Dissipation (Note 5)	T_A = +25°C	P_D	1.2	W
	T_A = +70°C		0.8	
Thermal Resistance, Junction to Ambient (Note 5)	Steady State	$R_{\theta JA}$	107	°C/W
	t<10s		63	
Total Power Dissipation (Note 6)	T_A = +25°C	P_D	2.0	W
	T_A = +70°C		1.2	
Thermal Resistance, Junction to Ambient (Note 6)	Steady State	$R_{\theta JA}$	64	°C/W
	t<10s		39	
Thermal Resistance, Junction to Case (Note 6)		$R_{\theta JC}$	7.6	
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 8)						
Drain-Source Breakdown Voltage	BV_{DSS}	30	—	—	V	V_{GS} = 0V, I_D = 250µA
Zero Gate Voltage Drain Current	I_{DSS}	—	—	1	µA	V_{DS} = 24V, V_{GS} = 0V
Zero Gate Voltage Drain Current T_J = +150°C (Note 9)	I_{DSS}	—	—	100	µA	V_{DS} = 24V, V_{GS} = 0V
Gate-Source Leakage	I_{GSS}	—	—	±100	nA	V_{GS} = 20V, V_{DS} = 0V V_{GS} =-16V, V_{DS} = 0V
ON CHARACTERISTICS (Note 8)						
Gate Threshold Voltage	$V_{GS(TH)}$	1	—	3	V	V_{DS} = V_{GS}, I_D = 250µA
Static Drain-Source On-Resistance	$R_{DS(ON)}$	—	7.2	11.1	mΩ	V_{GS} = 10V, I_D = 14.4A
		—	10.5	13.8		V_{GS} = 4.5V, I_D = 7A
		—	13	22.0		V_{GS} = 3.8V, I_D = 5A
Diode Forward Voltage	V_{SD}	—	—	1.2	V	V_{GS} = 0V, I_S = 10A
DYNAMIC CHARACTERISTICS (Note 9)						
Input Capacitance	C_{iss}	—	748	1,500	pF	V_{DS} = 15V, V_{GS} = 0V, f = 1.0MHz
Output Capacitance	C_{oss}	—	447	895		
Reverse Transfer Capacitance	C_{rss}	—	43	90		
Gate Resistance	R_g	—	1.0	2.0	Ω	V_{DS} = 0V, V_{GS} = 0V, f = 1.0MHz
Total Gate Charge (V_{GS} = 10V)	Q_g	—	13.8	20	nC	V_{DS} = 15V, I_D = 14.4A
Total Gate Charge (V_{GS} = 4.5V)	Q_g	—	6.4	9		
Gate-Source Charge	Q_{gs}	—	2.2	5		
Gate-Drain Charge	Q_{gd}	—	2.2	5		
Turn-On Delay Time	$t_{D(ON)}$	—	3.5	7	ns	V_{GS} = 10V, V_{DD} = 15V, R_g = 1Ω, I_D = 10A
Turn-On Rise Time	t_R	—	5.0	10		
Turn-Off Delay Time	$t_{D(OFF)}$	—	8.6	17		
Turn-Off Fall Time	t_F	—	1.4	3		
Body Diode Reverse Recovery Time	t_{RR}	—	18	33	ns	I_F = 10A, di/dt = 100A/µs
Body Diode Reverse Recovery Charge	Q_{RR}	—	7.7	15	nC	I_F = 10A, di/dt = 100A/µs

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 1-inch square copper plate.
7. UIS in production with L = 0.1mH, starting T_A = +25°C.
8. Short duration pulse test used to minimize self-heating effect.
9. Guaranteed by design. Not subject to product testing.
10. Package limited.

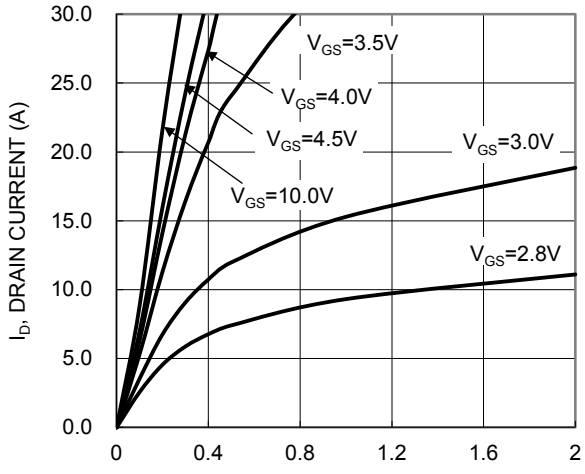


Figure 1. Typical Output Characteristic

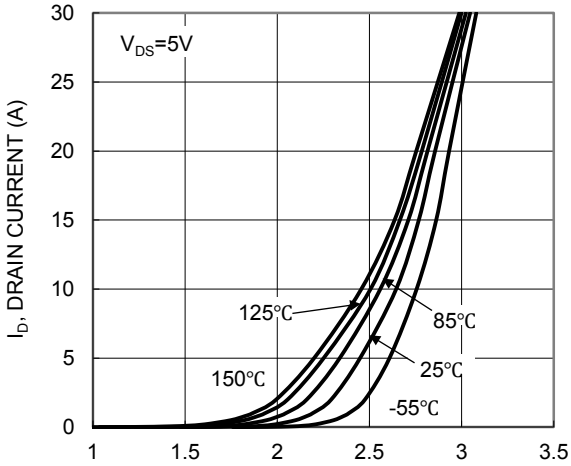


Figure 2. Typical Transfer Characteristic

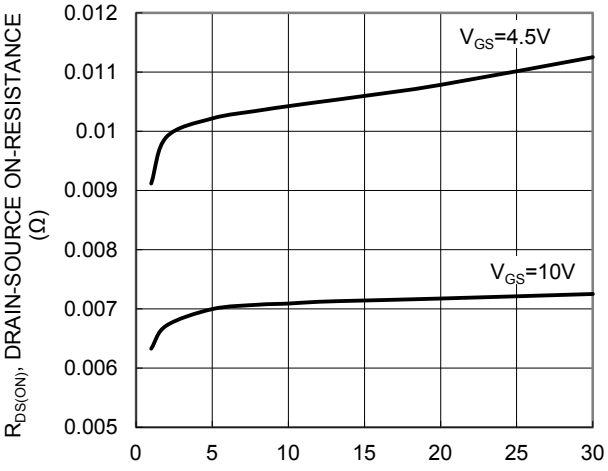


Figure 3. Typical On-Resistance vs. Drain Current and Gate Voltage

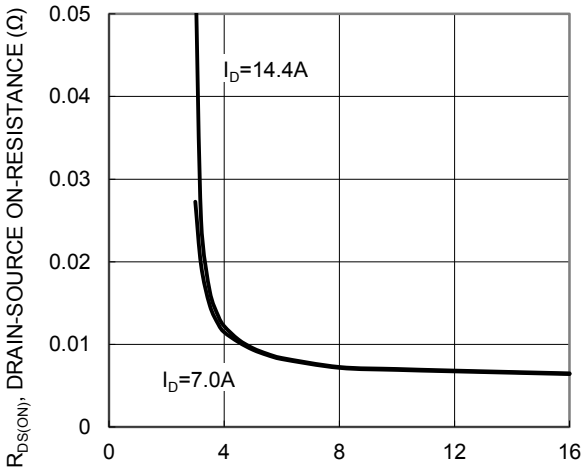


Figure 4. Typical Transfer Characteristic

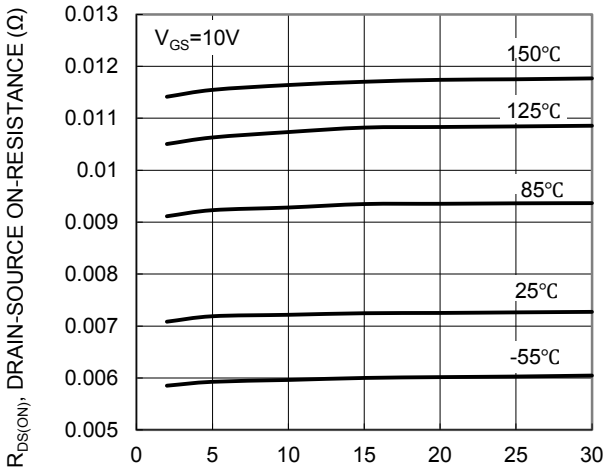


Figure 5. Typical On-Resistance vs. Drain Current and Junction Temperature

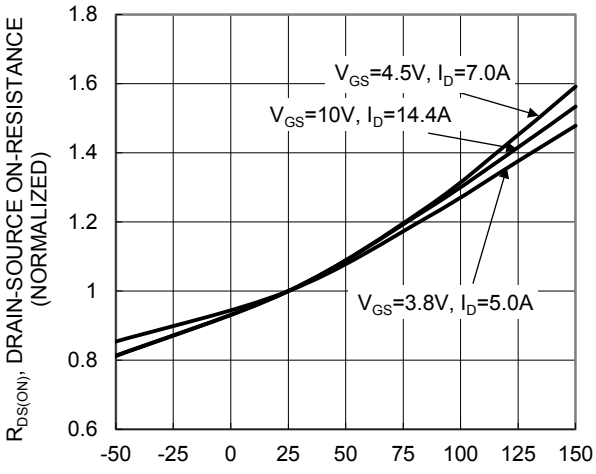


Figure 6. On-Resistance Variation with Junction Temperature

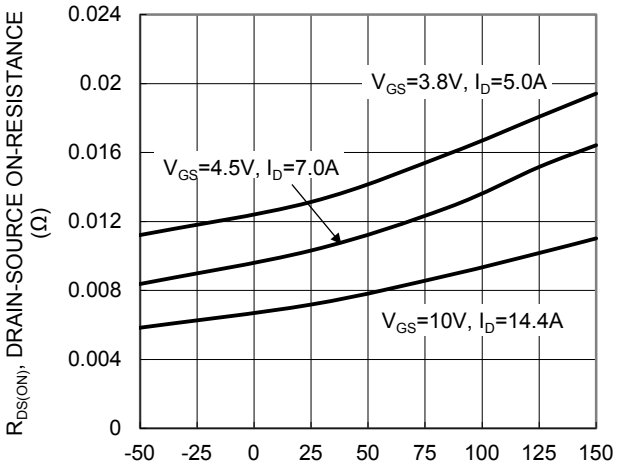


Figure 7. On-Resistance Variation with Junction Temperature

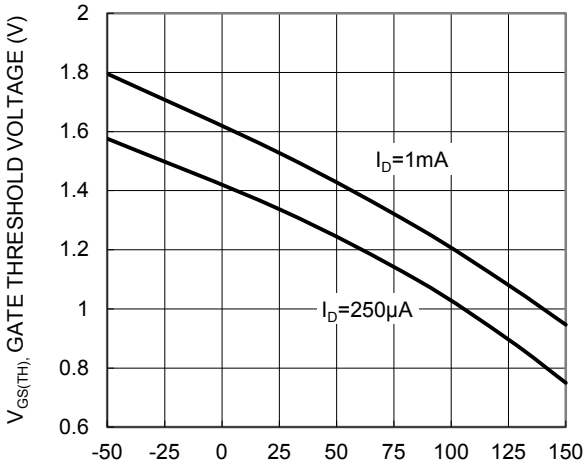


Figure 8. Gate Threshold Variation vs. Junction Temperature

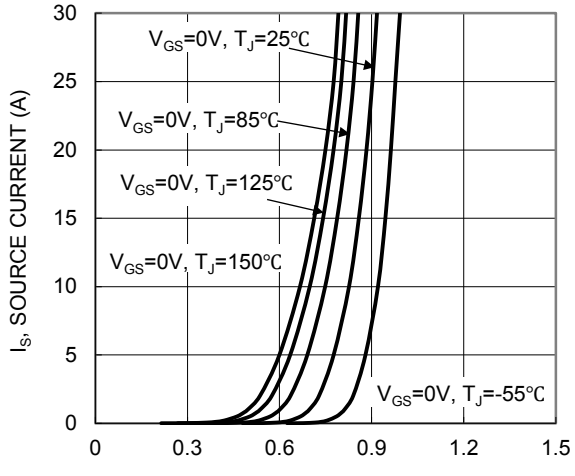


Figure 9. Diode Forward Voltage vs. Current

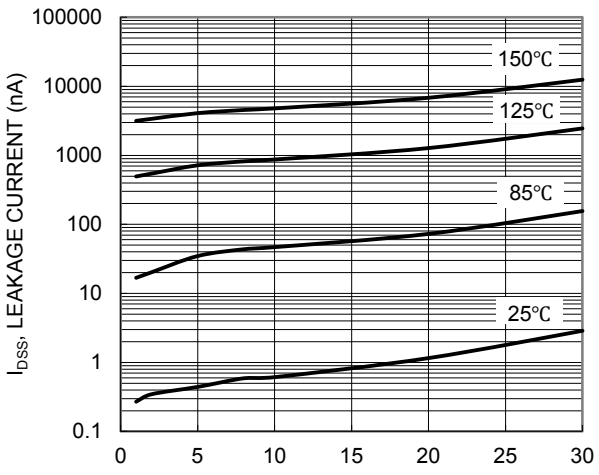


Figure 10. Typical Drain-Source Leakage Current vs. Voltage

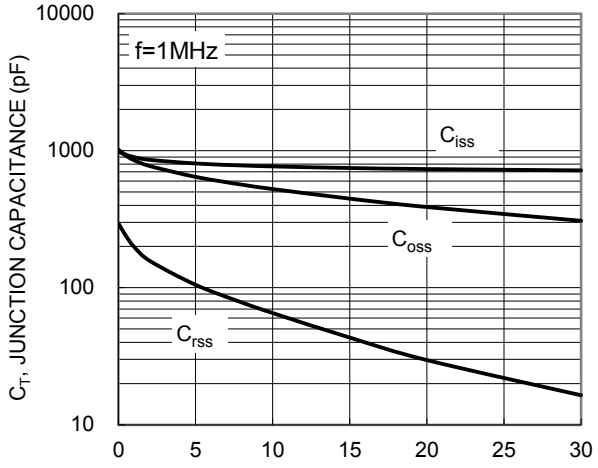


Figure 11. Typical Junction Capacitance

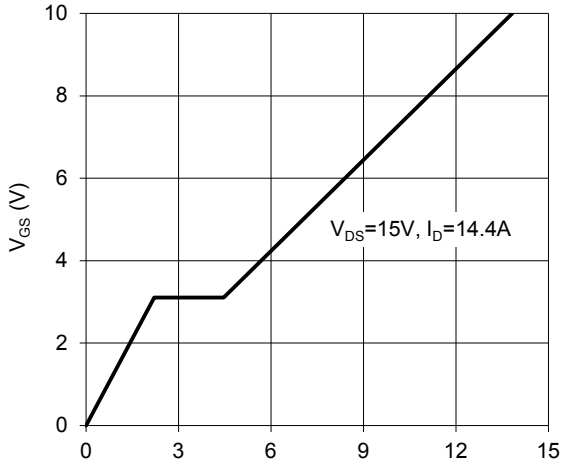


Figure 12. Gate Charge

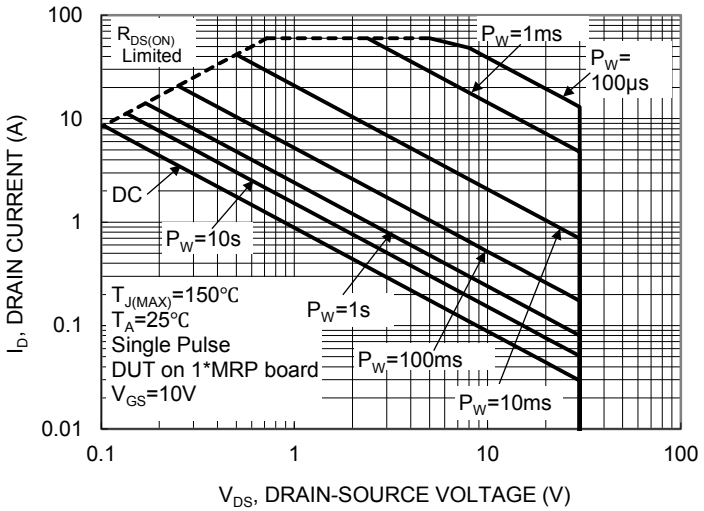


Figure 13. SOA, Safe Operation Area

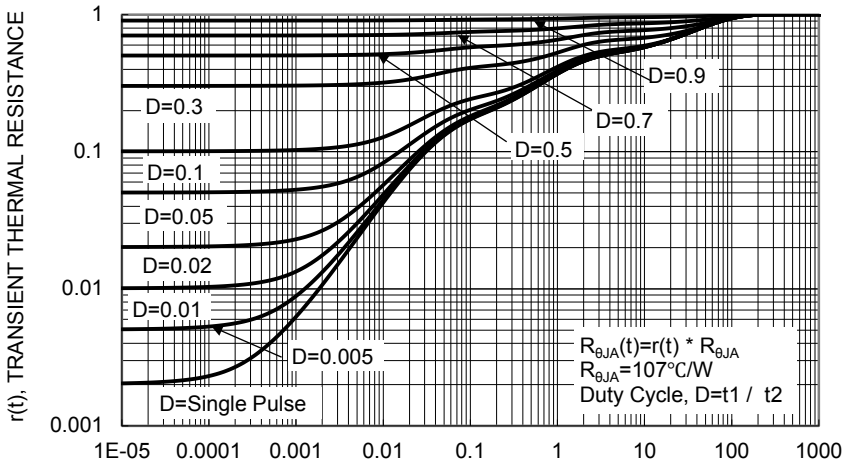
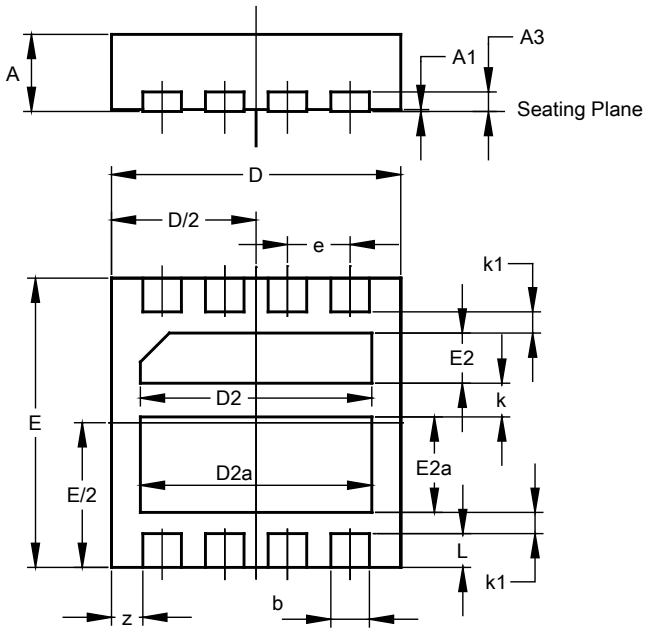


Figure 14. Transient Thermal Resistance

Package Outline Dimensions

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

V-DFN3030-8 (Type K)

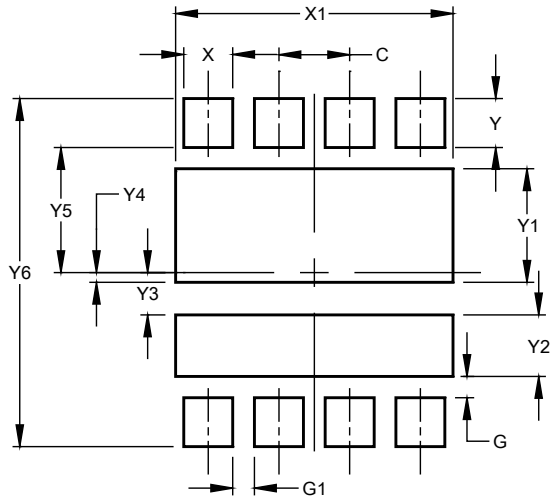


V-DFN3030-8 (Type K)			
Dim	**Min**	**Max**	**Typ**
A	0.77	0.85	0.80
A1	0.00	0.05	0.02
A3	0.20BSC		
b	0.35	0.45	0.40
D	2.95	3.050	3.00
D2	2.30	2.50	2.40
D2a	2.30	2.50	2.40
E	2.95	3.050	3.00
E2	0.42	0.62	0.52
E2a	0.89	1.09	0.99
e	0.65BSC		
k	-	-	0.35
k1	-	-	0.22
L	0.30	0.40	0.35
z	0.325BSC		
All Dimensions in mm			

Suggested Pad Layout

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

V-DFN3030-8 (Type K)



Dimensions	Value (in mm)
C	0.650
G	0.195
G1	0.200
X	0.450
X1	2.550
Y	0.450
Y1	1.044
Y2	0.566
Y3	0.389
Y4	0.089
Y5	1.150
Y6	3.200

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