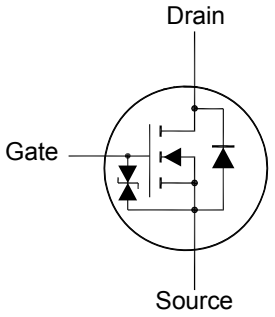
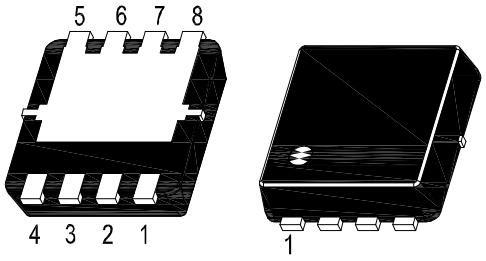
SFTN7422SMP

N-Channel Enhancement Mode MOSFET





1. Source 2. Source 3. Source 4. Gate
5. Drain 6. Drain 7. Drain 8. Drain
DFN3030 Plastic Package

Absolute Maximum Ratings

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	30	V
Drain-Gate Voltage		V_{GS}	± 20	V
Drain Current - Continuous [5]	T_C = 25℃ T_C = 100℃	I_D	34 27	A
Drain Current - Continuous	T_A = 25℃ T_A = 70℃	I_{DSM}	21 17	A
Power Dissipation [2]	T_C = 25℃ T_C = 100℃	P_D	31 12	W
Power Dissipation [1]	T_A = 25℃ T_A = 70℃	P_{DSM}	3.1 2	W
Drain Current - Pulsed [3]		I_{DM}	136	A
Operating Junction and Storage Temperature Range		T_j, T_{stg}	- 55 to + 150	℃

Thermal Characteristics

Parameter		Symbol	Max.	Unit
Thermal Resistance - Junction to Ambient [1]	t ≤ 10s	$R_{\theta JA}$	40	℃/W
Thermal Resistance - Junction to Ambient [1] [4]		$R_{\theta JA}$	75	℃/W
Thermal Resistance - Junction to Case		$R_{\theta JC}$	4	℃/W

[1] The value of $R_{\theta JA}$ is measured with the device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C. The Power dissipation P_{DSM} is based on $R_{\theta JA}$ t ≤ 10s value and the maximum allowed junction temperature of 150°C. The value in any given application depends on the user's specific board design.

[2] The power dissipation PD is based on $T_{J(MAX)}$=150°C, using junction-to-case thermal resistance, and is more useful in setting the upper dissipation limit for cases where additional heatsinking is used.

[3] Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)}$=150°C. Ratings are based on low frequency and duty cycles to keep initial T_J =25°C.

[4] The $R_{\theta JA}$ is the sum of the thermal impedence from junction to case $R_{\theta JC}$ and case to ambient.

[5] The maximum current rating is package limited.

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Characteristics at T_j = 25℃ unless otherwise specified

Parameter	Symbol	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage at I_D = 250 μA	BV_{DSS}	30	-	-	V
Gate-Source Threshold Voltage at V_{DS} = V_{GS}, I_D = 250 uA	V_{GSth}	1.2	-	2.2	V
Drain-Source Leakage Current at V_{DS} = 30 V at V_{DS} = 30 V,T_J = 55°C	I_{DSS}	- -	- -	1 5	μA
Gate-Source Leakage Current at V_{GS} = ± 20 V	I_{GSS}	-	-	±10	μA
Drain-Source On-State Resistance at V_{GS} = 10 V, I_D = 20 A	$R_{DS(on)}$	-	-	4	mΩ
Drain-Source On-State Resistance at V_{GS} = 4.5 V, I_D = 16 A	$R_{DS(on)}$	-	-	6.8	mΩ
Forward Transconductance at V_{DS} = 5 V, I_D = 20 A	g_{FS}	-	62	-	S
Input Capacitance at V_{GS} = 0 V,V_{DS} = 15 V, f = 1 MHz	C_{iss}	-	1540	-	pF
Output Capacitance at V_{GS} = 0 V, V_{DS} = 15 V, f = 1 MHz	C_{oss}	-	485	-	pF
Reverse Transfer Capacitance at V_{GS} = 0 V, V_{DS} = 15 V, f = 1 MHz	C_{rss}	-	448	-	pF
Turn-On Delay Time at V_{GS} = 10 V, V_{DS} = 15 V, R_L = 0.75 Ω, R_{GEN} = 3 Ω	$t_{d(on)}$	-	7	-	ns
Turn-On Rise Time at V_{GS} = 10 V, V_{DS} = 15 V, R_L = 0.75 Ω, R_{GEN} = 3 Ω	t_r	-	8.3	-	ns
Turn-Off Delay Time at V_{GS} = 10 V, V_{DS} = 15 V, R_L = 0.75 Ω, R_{GEN} = 3 Ω	t_{off}	-	24	-	ns
Turn-Off Fall Time at V_{GS} = 10 V, V_{DS} = 15 V, R_L = 0.75 Ω, R_{GEN} = 3 Ω	t_f	-	10	-	ns

Drain-Source Diode Characteristics and Maximum Ratings

Parameter	Symbol	Max.	Unit
Drain-Source Diode Forward Voltage at V_{GS} = 0 V, I_S = 1 A	V_{SD}	1	V
Source-drain current [1)]	I_S	34	A

[1)] The maximum current rating is package limited.

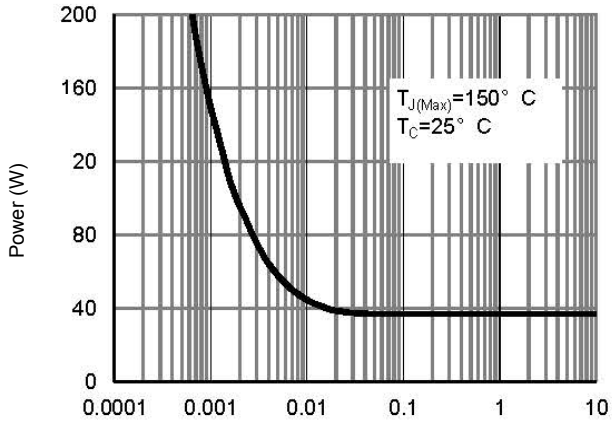

Figure 1.Single Pulse Power Rating Junction-to-Case

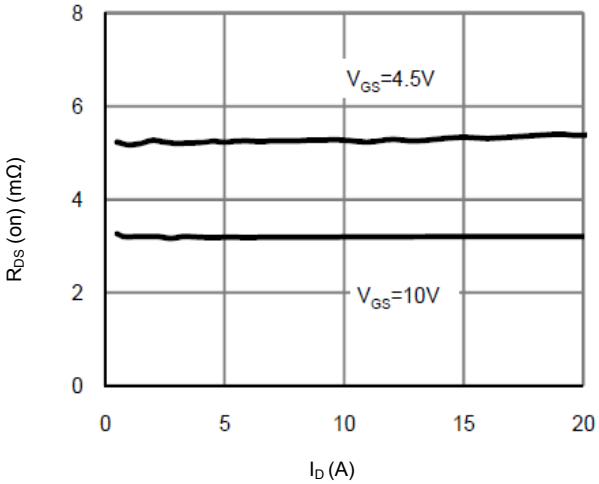

Figure 2.On-Resistance vs. Drain Current and Gate Voltage

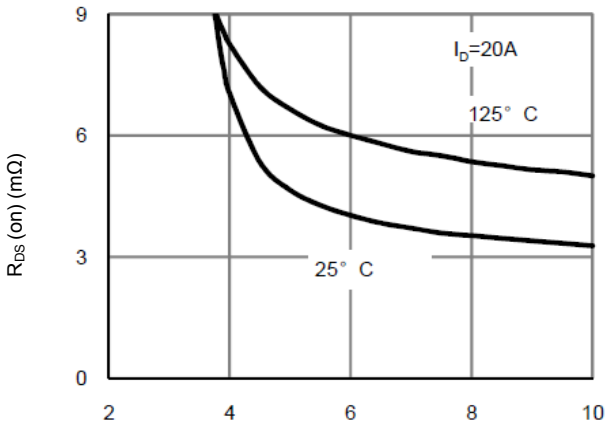

Figure 3.On-Resistance vs. Gate-Source Voltage

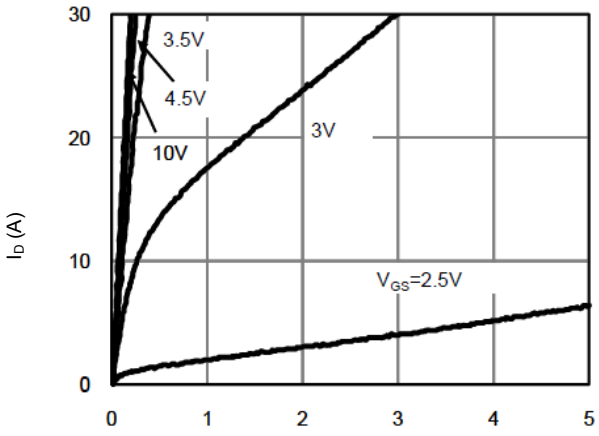

Figure 4.On-Region Characteristics

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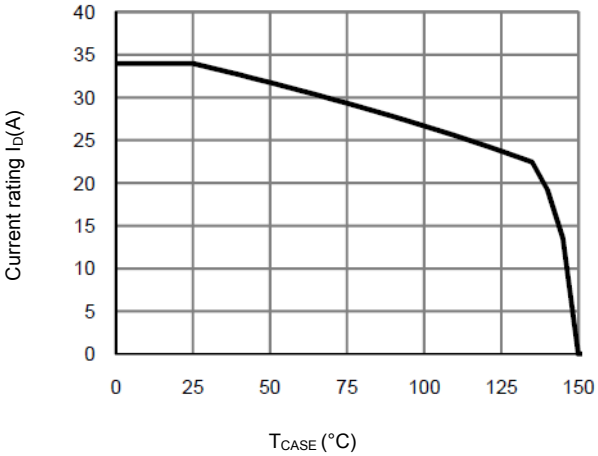

Figure 5.Current De-rating

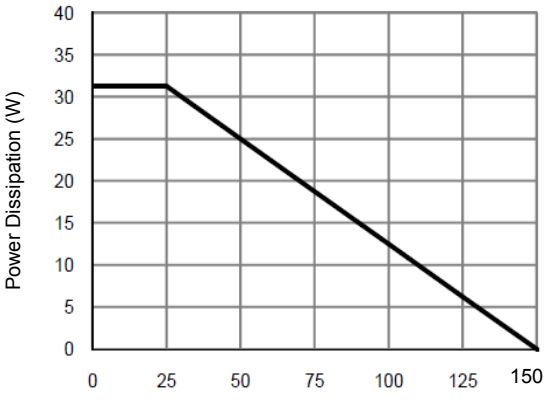

Figure 6.Power De-rating

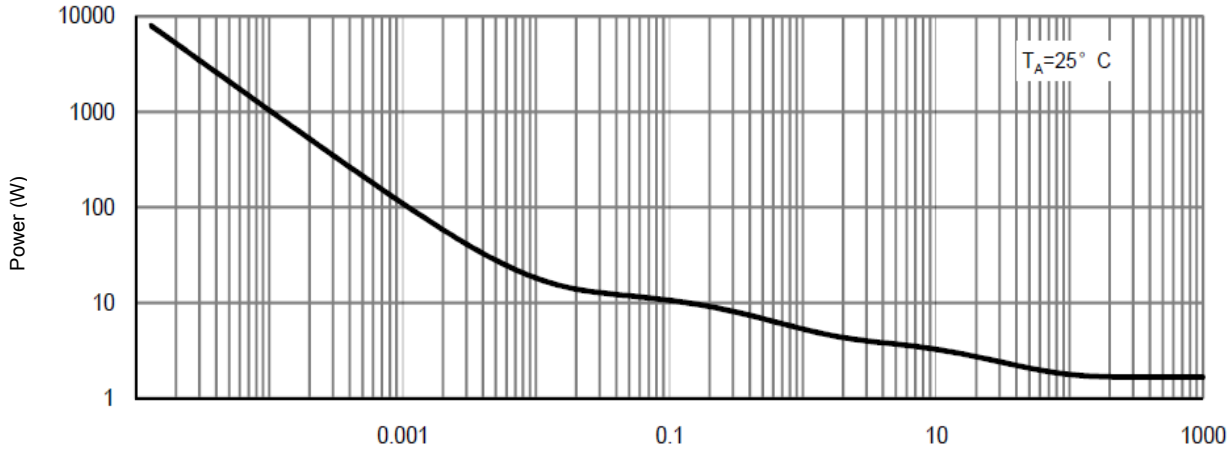

Figure 7.Single Pulse Power Rating Junction-to-Ambient

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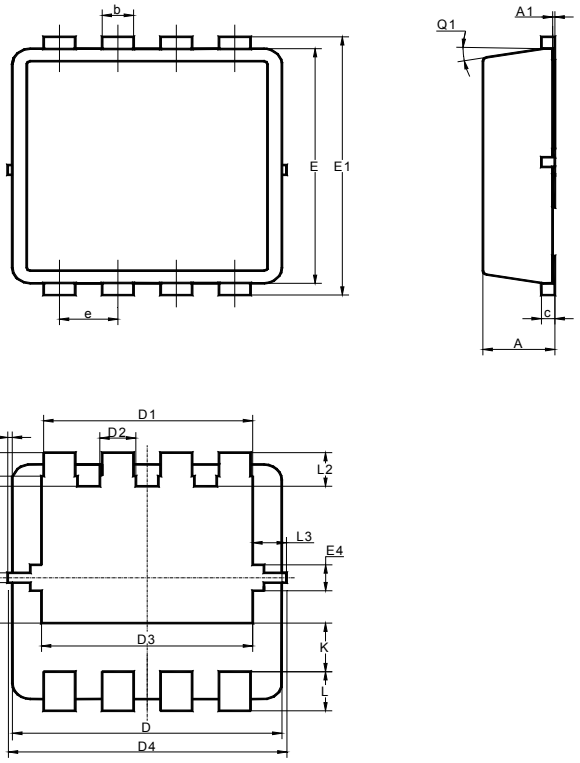
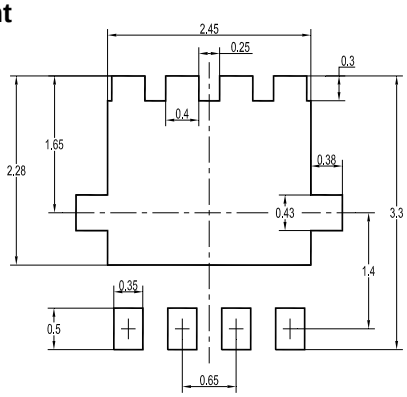
DFN3030 Package Outline Dimensions (Units: mm)



UNIT	A	A1	b	c	D	D1	D2	D3	D4	E	E1	E2	E3
mm	0.9	0.05	0.35	0.25	3.1	2.45	0.5	2.7	3.2	3.1	3.3	1.85	0.68
	0.7	0	0.24	0.1	2.9	2.2	0.3	2.4	3	2.9	3.1	1.65	0.48

UNIT	E4	E5	E6	e	K	L	L1	L2	L3	Q1
mm	0.43	0.4	0.25	0.7	0.72	0.5	0.1	0.53	0.475	12°
	0.23	0.2	0.075	0.6	0.52	0.3	0	0.33	0.275	0°

Recommended Soldering Footprint



Packing information

Package	Tape Width (mm)	Pitch		Reel Size		Per Reel Packing Quantity
		mm	inch	mm	inch	
DFN3030	8	4 ± 0.1	0.157 ± 0.004	330	13	3,000

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