

N Channel 20V (DS) MOSFET
FEATURES

- Advance Trench Process Technology
- High Density Cell Design for Ultra Low Onresistance

Application

- Portable Devices
- Consumer Electronics

Mechanical

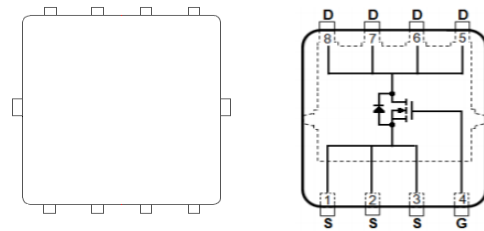
- Case: DFN3333 Package

Packing Information

Package	Packing
DFN3333	5Kpcs/13"Reel

PRODUCTY SUMMARY

V_{DS}	$R_{DS(on)}$ m(Ω)		I_D (A)
20	12	@ $V_{GS}=4.5V$	19.4
	15	@ $V_{GS}=2.5V$	17.3

DFN3333

Maximum Ratings ($T_A=25^{\circ}C$ unless otherwise specified)

Parameter	Symbol	Limit	Unit
DrainSource Voltage	V_{DS}	20	V
GateSource Voltage	V_{GS}	± 12	V
Continuous Drain Current ¹⁾	I_D	20	A
Maximum Power Dissipation	P_D	5	W
Pulsed Drain Current ²⁾	I_{DM}	80	A
Operating Junction and Storage Temperature Range	T_J, T_{STG}	55~150	$^{\circ}C$

Typical Thermal Resistance

Parameter	Symbol	Limit	Unit
JunctiontoAmbient Thermal Resistance ³⁾	$R_{\theta JA}$	65	$^{\circ}C/W$

Note:

1. Fused current that based on wire numbers and diameter
2. Repetitive Rating: Pulse width limited by the maximum junction temperature
3. 1in2 2oz Cu PCB board

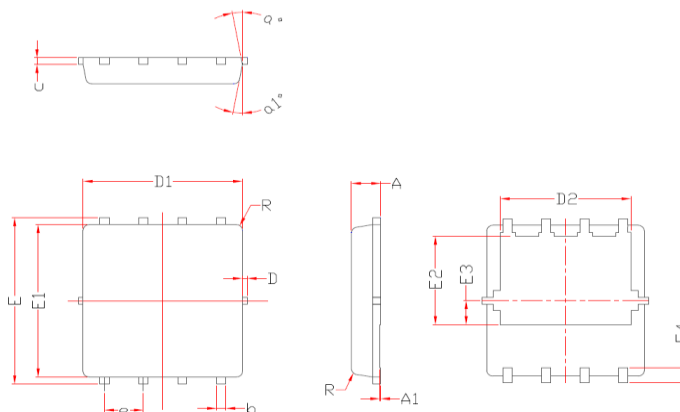
Electrical Characteristics (T _A = 25°C UNLESS OTHERWISE NOTED)						
Characteristics	Symbol	Test Condition	Limits			Unit
			Min	Typ	Max	
Static						
DrainSource Breakdown Voltage	B _{VDSS}	V _{GS} = 0V, I _D =250uA	20	-	-	V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250uA	0.40	0.63	1.00	V
DrainSource OnState Resistance	R _{DS(on)}	V _{GS} =4.5V, I _D =19.4A	-	10	12	mΩ
		V _{GS} =2.5V, I _D =17.3A	-	12	15	mΩ
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =20V, V _{GS} =0V	-	-	1	uA
GateSource Leakage Current	I _{GSS}	V _{GS} =±12V, V _{DS} =0V	-	-	±100	nA
Dynamic ³⁾						
Total Gate Charge	Q _g	V _{DS} =10V, I _D =11A, V _{GS} =4.5V	-	16.0	25.60	nC
Gate-Source Charge	Q _{gs}		-	2.5	-	nC
Gate-Drain Charge	Q _{gd}		-	4.5	-	nC
Input Capacitance	C _{iss}	V _{DS} =10V, V _{GS} =0V, f=1.0MHZ	-	1400	2240	pF
Output Capacitance	C _{oss}		-	170	-	pF
Reverse Transfer Capacitance	C _{rss}		-	135	-	pF
Switching						
Turn-On Delay Time	t _{d(on)}	V _{DS} =11V, I _D =1A, V _{GS} =5V, RG=3.3Ω	-	10	-	ns
Turn-On Rise Time	t _r		-	13	-	ns
Turn-Off Delay Time	t _{d(off)}		-	28	-	ns
Turn-Off Fall Time	t _f		-	7	-	ns
DrainSource Diode						
Maximum Continuous Body Diode Forward Current	I _S	V _G =V _D =0V , Force Current	-	-	1.2	A
Diode Forward Voltage	V _{SD}	I _S =1.0A, V _{GS} =0V	-	-	1.5	V

NOTES :

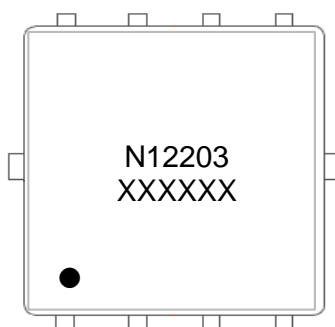
1. Pulse width<300us, Duty cycle<2%.
2. Essentially independent of operating temperature typical characteristics.
3. Repetitive rating, pulse width limited by junction temperature T_J(MAX)=150°C. Ratings are based on low frequency and duty cycles to keep initial T_J =25°C.
4. The maximum current rating is package limited.
5. RQJA is the sum of the junction to case and case to ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins. Mounted on a 1 inch² with 2oz.sqare pad of copper.
6. Guaranteed by design. not subject to production testing.

Package Outline Dimensions (inches and millimeters)

SYMBOL	Dimensions			
	Millimeters		Inches	
	Min	Max	Min	Max
A	0.78	0.82	0.031	0.032
A1	0.00	0.05	0.000	0.002
b	0.30	0.35	0.012	0.014
c	0.15		0.006	
D	0.00	0.05	0.000	0.002
D1	2.98	3.03	0.117	0.119
D2	2.35		0.093	
E	3.20	3.25	0.126	0.128
E1	2.98	3.03	0.117	0.119
E2	1.75		0.069	
E3	0.58		0.023	
E4	0.350	0.45	0.014	0
R	0.20		0.008	
e	0.65BSC			
a°	3°			
a1°	10°			



Marking Information



First line:

AAAAAA = Product number

Second line:

XXXXXX = Tracking number

Third line: Gate Pin Point

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