

N-Channel 30V MOSFET
FEATURES

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

Application

- Portable Devices
- Consumer Electronics

Mechanical

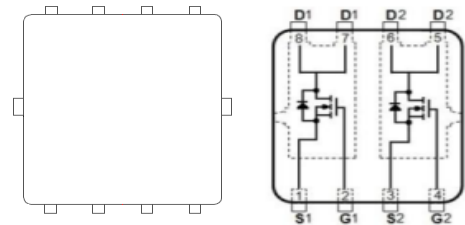
- Case: DFN3333 Package

Packing Information

Package	Packing
DFN3333	5Kpcs/13"Reel

PRODUCTY SUMMARY

V_{DS}	$R_{DS(on)}$ m(Ω)	I_D (A)
30	14 @ $V_{GS}=10V$	18
	21 @ $V_{GS}=4.5V$	15

DFN3333

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

Parameter	Symbol	Limit	Unit
DrainSource Voltage	V_{DS}	30	V
GateSource Voltage	V_{GS}	± 20	V
Continuous Drain Current ⁴⁾	I_D	18	A
Maximum Power Dissipation	P_D	5	W
Pulsed Drain Current ¹⁾	I_{DM}	72	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	$R_{\theta JA}$	62.5	$^{\circ}C/W$

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 $T_J(MAX)=150^{\circ}C$. Ratings are based on low frequency and duty cycles to keep initial $T_J=25^{\circ}C$.
4. The maximum current rating is package limited.
5. $R_{\theta JA}$ is the sum of the junctionto 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.square pad of copper.
6. Guaranteed by design, not subject to production testing.

Electrical Characteristics (T _A = 25°C UNLESS OTHERWISE NOTED)						
Characteristics	Symbol	Test Condition	Limits			Unit
			Min	Typ	Max	
Static						
DrainSource Breakdown Voltage	B _{VDSS}	VGS = 0V, ID =250uA	30	-	-	V
Gate Threshold Voltage	V _{GS(th)}	VDS=VGS, ID=250uA	1.00	1.60	3.00	V
DrainSource OnState Resistance	R _{DS(on)}	VGS=10V,ID=18A	-	12	14	mΩ
		VGS=4.5V,ID=15A	-	18	21	mΩ
Zero Gate Voltage Drain Current	I _{DSS}	VDS=30V,VGS=0V			1.00	uA
GateSource Leakage Current	I _{GSS}	VGS=±20V,VDS=0V			±100	nA

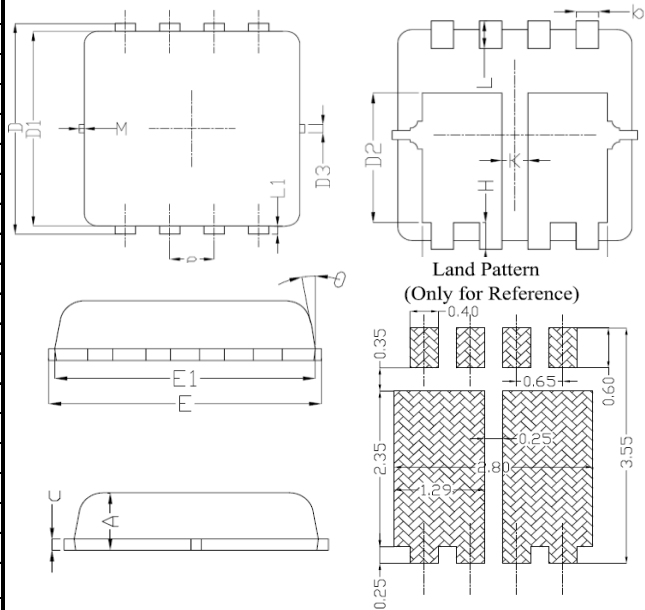
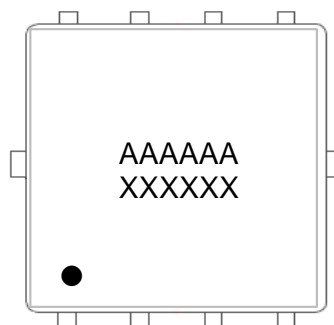
DrainSource Diode						
Maximum Continuous Body Diode Forward Current	I_S	$V_G = V_D = 0V$, Force Current	-	-	1.2	A
Diode Forward Voltage	V_{SD}	$I_S = 1.0A, V_{GS} = 0V$	-	-	1.5	V

NOTES :

1. Pulse width < 300 μs , Duty cycle < 2%.
2. Essentially independent of operating temperature typical characteristics.
3. Repetitive rating, pulse width limited by junction temperature $T_J(MAX) = 150^\circ\text{C}$. Ratings are based on low frequency and duty cycles to keep initial $T_J = 25^\circ\text{C}$.
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. square pad of copper.
6. Guaranteed by design, not subject to production testing.

Package Outline Dimensions (inches and millimeters)

DFN3333				
SYMBOL	Dimensions			
	Millimeters		Inches	
	Min	Max	Min	Max
A	0.70	0.80	0.03	0.03
b	0.25	0.35	0.01	0.01
c	0.10	0.25	0.00	0.01
D	3.25	3.45	0.13	0.14
D1	3.00	3.20	0.12	0.13
D2	1.78	1.98	0.07	0.08
D3	-	0.13	-	0.01
E	3.20	3.40	0.13	0.13
E1	3.00	3.20	0.12	0.13
E2	2.39	2.59	0.09	0.10
e	0.65BSC			
H	0.30	0.50	0.01	0.02
L	0.30	0.50	0.01	0.02
L1	0.13		-	0.005
K	0.30	-	0.01	-
θ	-	12 °	-	12 °
M	-	0.15	-	0.01


Marking Information


First line:

AAAAAA = Product number

Second line:

XXXXXX = Tracking number

Third line: Pin1 Point

Motive reserves the right to make changes without further notice to any products herein. Motive makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does Motive assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. "Typical" parameters which may be provided in Motive data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. Motive does not convey any license under its patent rights nor the rights of others. Motive products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the Motive product could create a situation where personal injury or death may occur. Should Buyer purchase or use Motive products for any such unintended or unauthorized application, Buyer shall indemnify and hold Motive and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that Motive was negligent regarding the design or manufacture of the part.