

N+P 40V MOSFET

FEATURES

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

Application

- Portable Devices
- Consumer Electronics

PRODUCTY SUMMARY

V_{DS}	$R_{DS(on)}$ m(Ω) Max	
40	18	@ $V_{GS}=10V$
	22	@ $V_{GS}=4.5V$
-40	35	@ $V_{GS}=-10.0V$
	41	@ $V_{GS}=-4.5V$

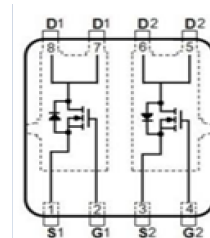
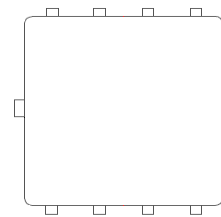
Mechanical

- Case:DFN3333 Package

Packing Information

Package	Packing
DFN3333	5Kpcs/13"Reel

DFN3333



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

Parameter	Symbol	Limit		Unit
		N-Channel	P-Channel	
Drain-Source Voltage	V_{DS}	40	-40	V
Gate-Source Voltage	V_{GS}	± 20	± 20	V
Continuous Drain Current ¹⁾	I_D	15	-12	A
Pulsed Drain Current ⁴⁾	I_{DM}	60	-48	A
Maximum Power Dissipation	P_D	5	5	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	-55 to 150	$^{\circ}C$

Typical Thermal Resistance

Parameter	Symbol	Limit	Unit
Junction-to-Ambient Thermal Resistance ³⁾	$R_{\theta JA}$	34	$^{\circ}C/W$

Note:

1. Pulse width<300us, Duty cycle<2%.
2. Fused current that based on wire numbers and diameter.
3. Guaranteed by design, not subject to production testing.
4. The maximum current rating is package limited.
5. 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 $T_J=25^{\circ}C$.

Electrical Characteristics (TA=25°C UNLESS OTHERWISE NOTED)						
Characteristics	Symbol	Test Condition	Limits			Unit
			Min	Typ	Max	
N-Channel Static						
Drain-Source Breakdown Voltage	B _{VDSS}	V _{GS} =0V, I _D =250uA	40	-	-	V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250uA	1.0	1.6	2.0	V
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} =10.0V, I _D =18A	-	15	18	mΩ
		V _{GS} =4.5V, I _D =16A	-	19	22	mΩ
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =40V, V _{GS} =0V	-	-	1.0	uA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	± 100	nA
Drain-Source Diode						
Maximum Continuous Body Diode Forward Current	I _S	-	-	-	1.2	A
Diode Forward Voltage	V _{SD}	I _S =1.0A, V _{GS} =0V	-	-	1.5	V

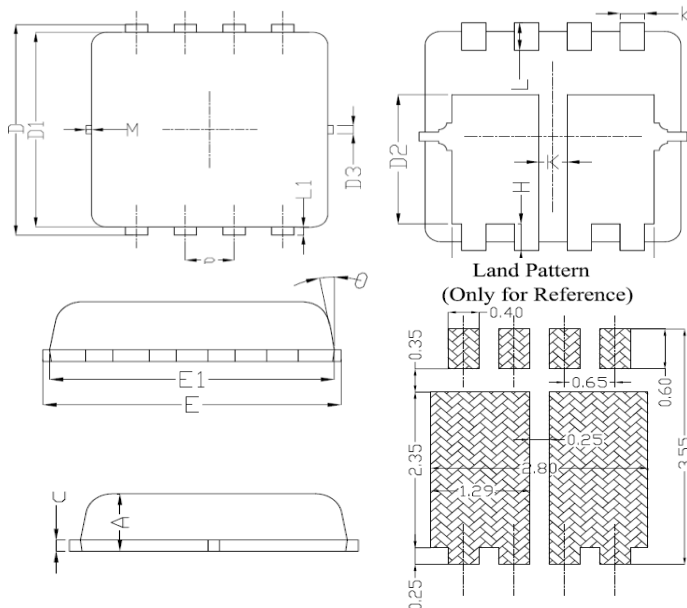
Electrical Characteristics (TA=25°C UNLESS OTHERWISE NOTED)						
Characteristics	Symbol	Test Condition	Limits			Unit
			Min	Typ	Max	
P-Channel Static						
Drain-Source Breakdown Voltage	B _{VDSS}	V _{GS} =0V, I _D =-250uA	-40	-	-	V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250uA	-1.0	-	-3.0	V
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} =-10.0V, I _D =-11A	-	30	35	mΩ
		V _{GS} =-4.5V, I _D =-10A	-	35	41	mΩ
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-40V, V _{GS} =0V	-	-	1.0	uA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	± 100	nA
Drain-Source Diode						
Maximum Continuous Body Diode Forward Current	I _S	-	-	-	-1.2	A
Diode Forward Voltage	V _{SD}	I _S =-1.0A, V _{GS} =0V	-	-	-1.5	V

Note:

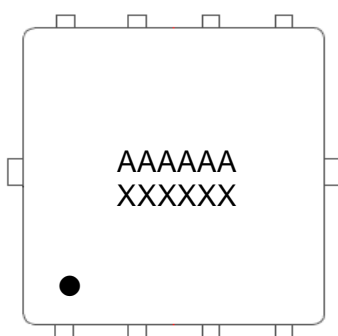
1. Pulse width<300us, Duty cycle<2%.
2. Essentially independent of operating temperature typical characteristics.
3. Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)}=150^{\circ}C$. Ratings are based on low frequency and duty cycles to keep initial $T_J=25^{\circ}C$.
4. The maximum current rating is package limited.
5. R_{QJA} 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



AAAAAA = Product number

XXXXXX = Tracking number

Third line = Pin1 Point

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