ASDM30P11TD

-30V P-Channel MOSFET

Features

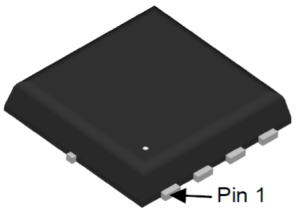
- Low FOM RDS(on)×Qgd
- 100% avalanche tested
- Easy to use/drive
- RoHS compliant

Application

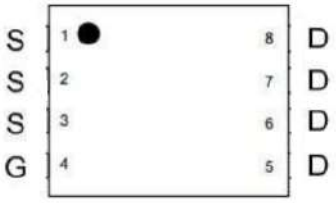
- Power Switch Circuit of Adaptor and Charger
- Battery Protection Charge/Discharge
- Notebook AC-in Load Switch

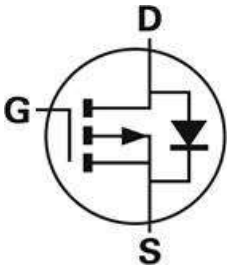
Product Summary

V_{DS}	-30	V
$R_{DS(on),TYP}$@ V_{GS}=10 V	6.4	mΩ
I_D	-55	A



PDFN3*3-8





Absolute Maximum Ratings T_A = 25ºC, unless otherwise noted

Parameter		Symbol	Values	Unit
Drain-Source voltage(V_{GS}=0V)		V_{DS}	-30	V
Continuous Drain Current[2]	T_C = 25ºC	I_D	-55	A
	T_C = 100ºC		-34.6	
Pulsed Drain Current[3]		$I_{D,pulse}$	-220	A
Gate-Source Voltage		V_{GSS}	±25	V
Single Pulse Avalanche Energy		E_{AS}	200	mJ
Power Dissipation		P_D	31.2	W
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55~+150	ºC

Thermal Resistance

Parameter	Symbol	Max.	Unit
Thermal Resistance, Junction-to-Case	R_{thJC}	4	ºC/W
Thermal Resistance, Junction-to-Ambient	R_{thJA}	35	ºC/W

Notes

1) L=0.5mH,VDD=-15V,Start TJ=25℃

2) Limited by maximum junction temperature.

3) Repetitive Rating: Pulse width limited by maximum junction temperature.

Electrical Characteristics T_J = 25ºC, unless otherwise noted

Parameter	Symbol	Test Conditions	Value			Unit
			Min.	Typ.	Max.	
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = -250μA	-30	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -30V V_{GS} = 0V, T_J = 25ºC	--	--	-1	μA
		V_{DS} = -24V, V_{GS} = 0V, T_J = 125ºC	--	--	-100	
Gate-Source Leakage Current	I_{GSS}	V_{GS} = ±25V	--	--	±100	nA
Gate-Source Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = -250μA	-1.2	-1.8	-2.5	V
Drain-Source On-State-Resistance	$R_{DS(on)}$	V_{GS} = -10V, I_D = -20A	--	6.4	8	mΩ
		V_{GS} = -4.5V, I_D = -10A	--	10.5	13	mΩ
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = -15V f = 1.0MHz	--	3482	--	pF
Output Capacitance	C_{oss}		--	400	--	
Reverse Transfer Capacitance	C_{rss}		--	309	--	
Total Gate Charge	Q_g	V_{DS} = -15V , I_D = -10A V_{GS} = -10V	--	61	--	nC
Gate-Source Charge	Q_{gs}		--	12	--	
Gate-Drain Charge	Q_{gd}		--	10	--	
Gate Plateau Voltage	$V_{Plateau}$		--	3.1	--	V
Turn-on Delay Time	$t_{d(on)}$	V_{DS} = -15V , V_{GS} = -10V R_G = 3Ω, I_D = -10A	--	19	--	ns
Turn-on Rise Time	t_r		--	33	--	
Turn-off Delay Time	$t_{d(off)}$		--	38	--	
Turn-off Fall Time	t_f		--	15	--	
Drain-Source Body Diode Characteristics						
Body Diode Forward Voltage	V_{SD}	T_J = 25ºC, I_{SD} = -10A, V_{GS} = 0V	--	--	-1.2	V
Continuous Diode Forward Current	I_S		--	--	-55	A
Reverse Recovery Time	t_{rr}	I_F = -10A, di_F/dt = -100A/μs	--	45	--	ns
Reverse Recovery Charge	Q_{rr}		--	29	--	nC

Typical Characteristics T_J = 25ºC, unless otherwise noted

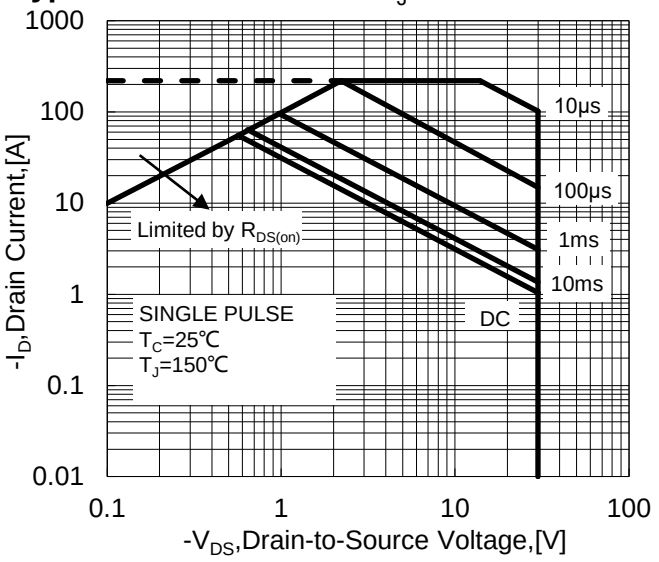


Figure 1. Maximum Safe Operating Area

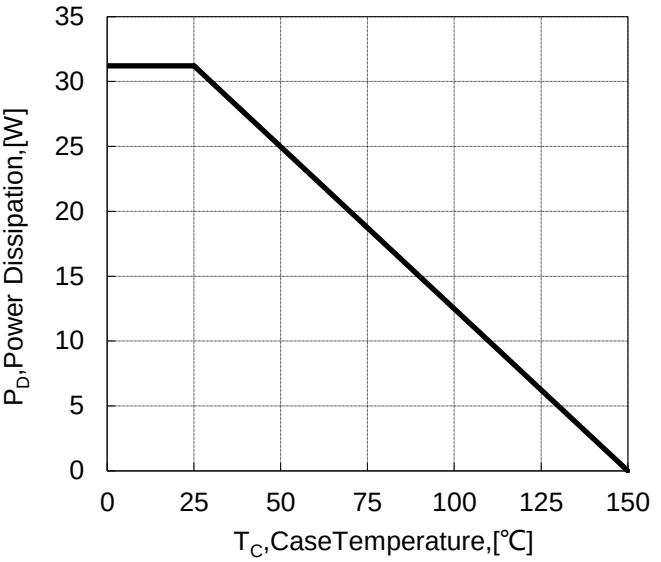


Figure 2. Maximum Power Dissipation vs Case Temperature

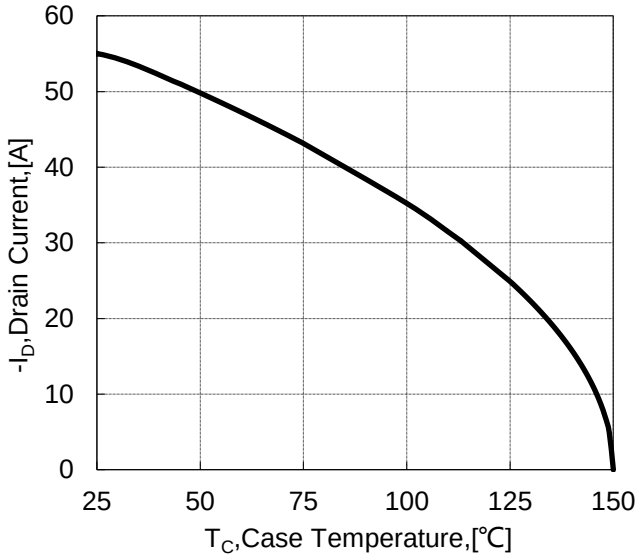


Figure 3. Maximum Continuous Drain Current vs Case Temperature

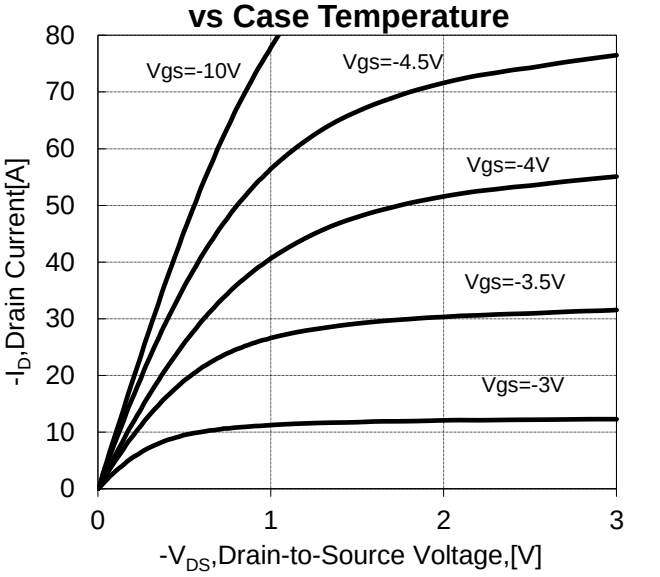


Figure 4. Typical output Characteristics

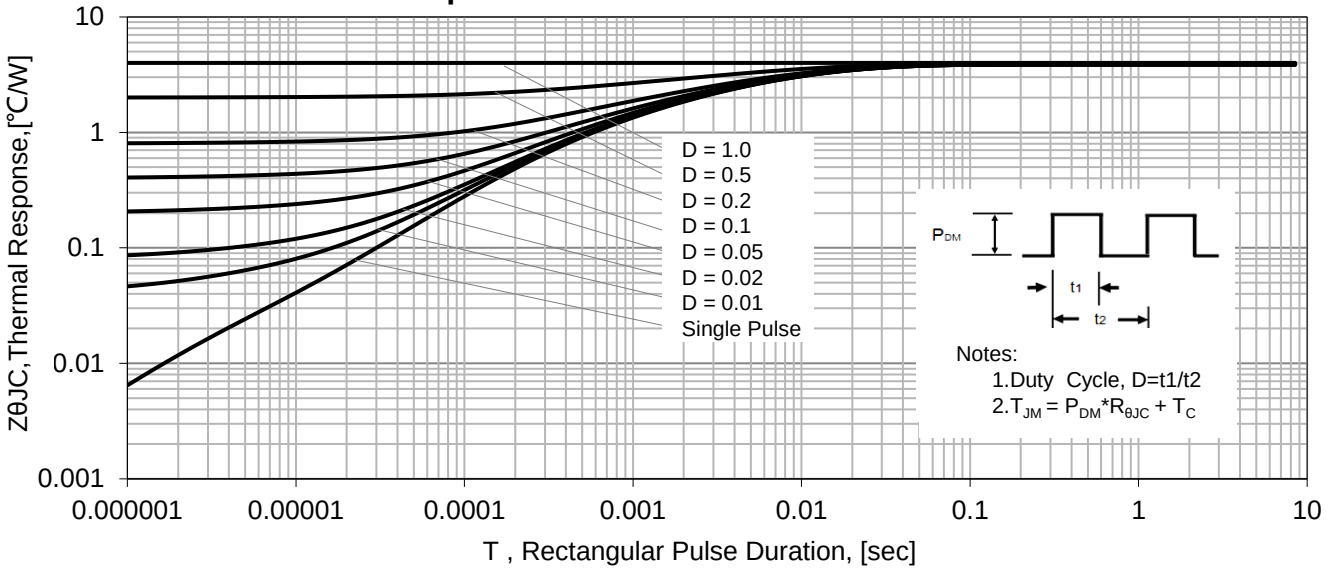


Figure 5 Maximum Effective Thermal Impedance , Junction to Case

Typical Characteristics T_J = 25ºC, unless otherwise noted

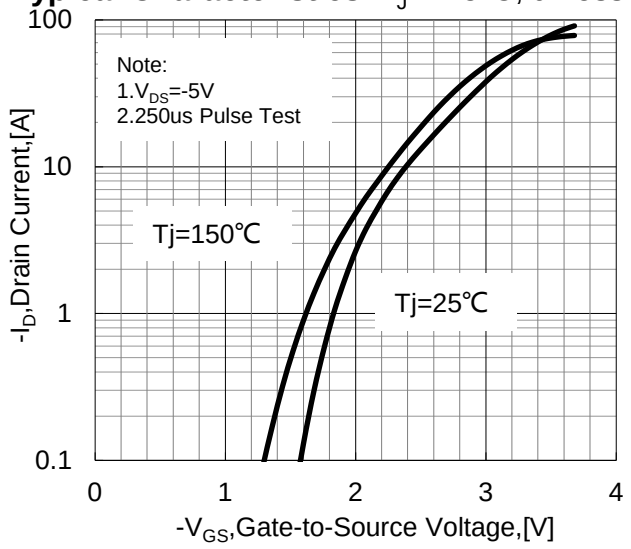


Figure 6 Typical Transfer Characteristics

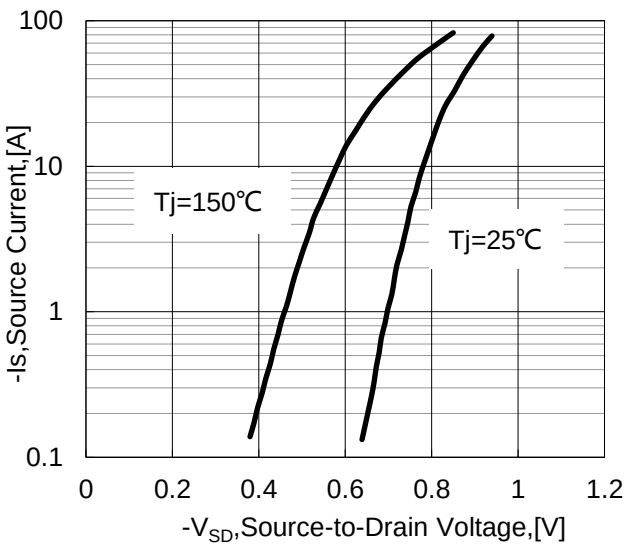


Figure 7 Typical Body Diode Transfer Characteristics

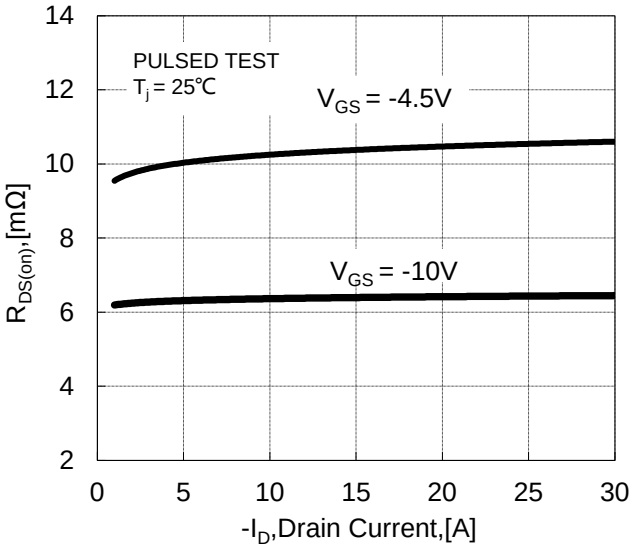


Figure 8. Drain-to-Source On Resistance vs Drain Current

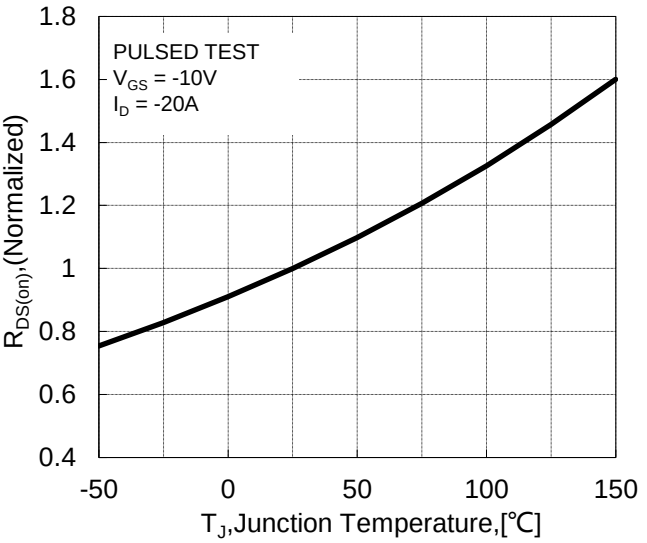


Figure 9. Normalized On Resistance vs Junction Temperature

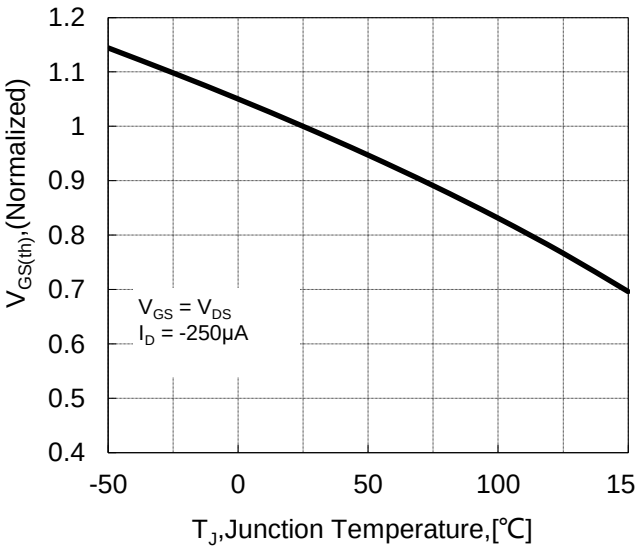


Figure10. Normalized Threshold Voltage vs Junction Temperature

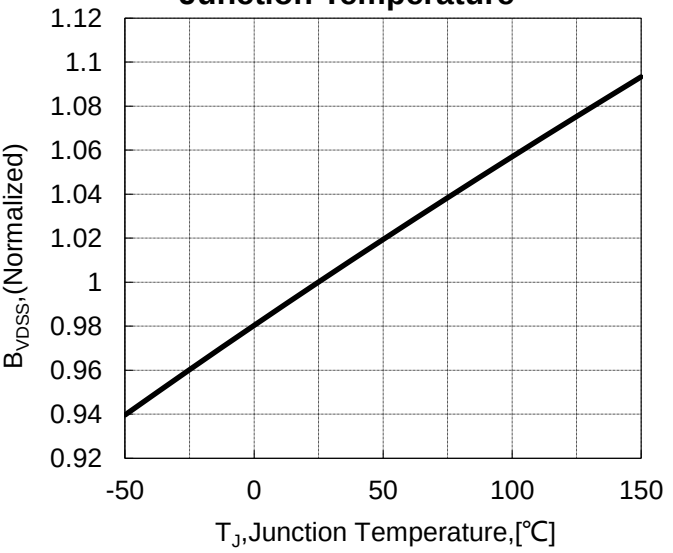


Figure 11. Normalized Breakdown Voltage vs Junction Temperature

Typical Characteristics T_J = 25ºC, unless otherwise noted

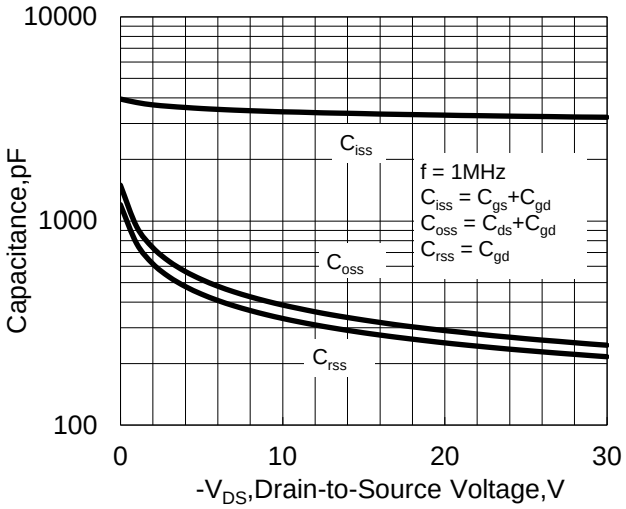


Figure 12. Capacitance Characteristics

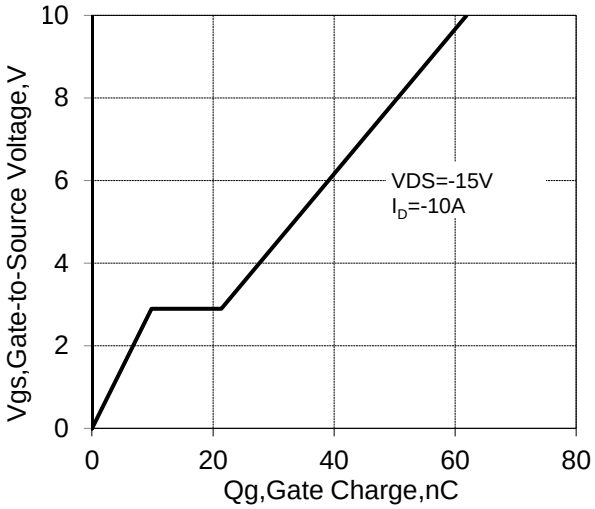
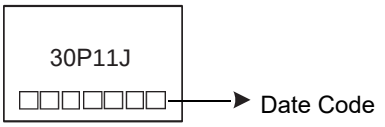


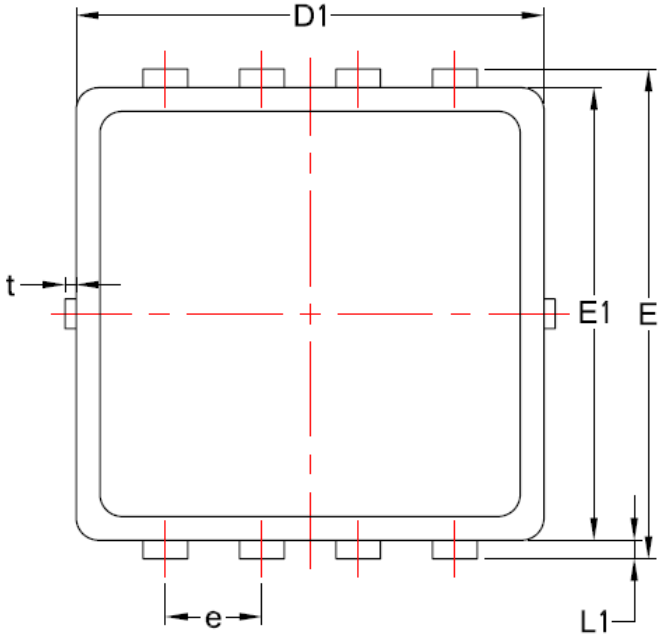
Figure 13 Typical Gate Charge vs Gate to Source Voltage

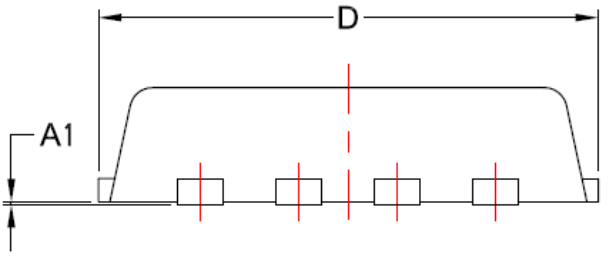
Ordering and Marking Information

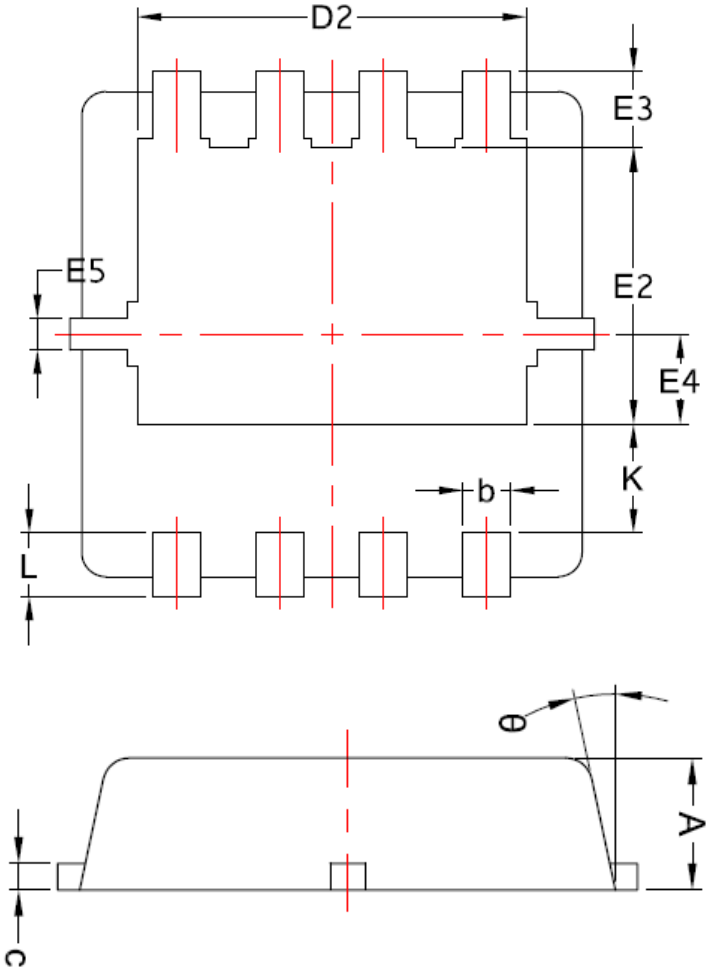
Ordering Device No.	Marking	Package	Packing	Quantity
ASDM30P11TD-R	30P11J	PDFN3*3-8	Tape&Reel	5000

PACKAGE	MARKING
PDFN3*3-8	

PDFN3*3_8 Package







SYMBOL	COMMON		
	MM		
	MIN	NOM	MAX
A	0.70	0.75	0.85
A1	/	/	0.05
b	0.20	0.30	0.40
c	0.10	0.152	0.25
D	3.15	3.30	3.45
D1	3.00	3.15	3.25
D2	2.29	2.45	2.65
E	3.15	3.30	3.45
E1	2.90	3.05	3.20
E2	1.54	1.74	1.94
E3	0.28	0.48	0.65
E4	0.37	0.57	0.77
E5	0.10	0.20	0.30
e	0.60	0.65	0.70
K	0.59	0.69	0.89
L	0.30	0.40	0.50
L1	0.06	0.125	0.20
t	0	0.075	0.13
θ	10°	12°	14°

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