



-20V/-17A P-Channel Advanced Power MOSFET

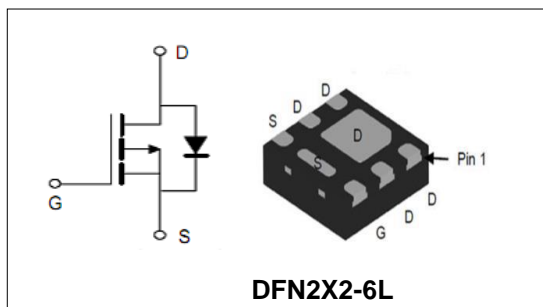
Features

- Improved dv/dt Capability, High Ruggedness.
- Maximum Junction Temperature Range (150°C)

BVDSS	-20	V
ID	-17	A
RDSON@VGS=-4.5V	10	mΩ
RDSON@VGS=-2.5V	13	mΩ
RDSON@VGS=-1.8V	18	mΩ

Applications

- Battery protection
- Load switch
- Power management



Order Information

Product	Package	Marking	Reel Size	Reel	Carton
PTM2117	DFN2X2-6L	PTM2117	7inch	3000PCS	120000PCS

Absolute Maximum Ratings

Symbol	Parameter	Rating	Unit	
Common Ratings (TC=25°C Unless Otherwise Noted)				
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	-20	V	
V_{GS}	Gate-Source Voltage	±10	V	
T_J	Maximum Junction Temperature	150	°C	
T_{STG}	Storage Temperature Range	-55 to 150	°C	
I_S	Diode Continuous Forward Current	TC =25°C	-13	A
Mounted on Large Heat Sink				
I_{DM}	Pulse Drain Current Tested (Silicon Limit) (Note1)	TC =25°C	-64	A
I_D	Continuous Drain current	TC =25°C	-17	A
P_D	Maximum Power Dissipation	TA =25°C	18	W
$R_{θJA}$	Thermal Resistance Junction-to-Ambient (Note2)		6.9	°C/W

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Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
Static Electrical Characteristics @ T_J = 25°C (unless otherwise stated)						
V _{(BR)DSS}	Drain- Source Breakdown Voltage	VGS=0V ID=-250μA	-20	--	--	V
I _{DSS}	Zero Gate Voltage Drain current	VDS=-20V,VGS=0V	--	--	-1	μA
I _{GSS}	Gate-Body Leakage Current	VGS=±10V,VDS=0V	--	--	±100	nA
V _{GS(TH)}	Gate Threshold Voltage	VDS=VGS,ID=-250μA	-0.4	-0.62	-1	V
R _{DS(ON)}	Drain-Source On-State Resistance (Note3)	VGS=-4.5V, ID=-13A	--	10	17	mΩ
		VGS=-2.5V, ID=-6.5A	--	13	20	mΩ
		VGS=-1.8V, ID=-3A	--	18	26	mΩ
Dynamic Electrical Characteristics @ T_J = 25°C (unless otherwise stated) (Note4)						
C _{iss}	Input Capacitance	VDS= -10V, VGS=0V, F=1MHz	--	2992	--	pF
C _{oss}	Output Capacitance		--	330	--	pF
C _{rss}	Reverse Transfer Capacitance		--	272	--	pF
Q _g	Total Gate Charge	VDS= -15V, ID= -9.1A, VGS= -10V	--	72.8	--	nC
Q _{gs}	Gate-Source Charge		--	6.6	--	nC
Q _{gd}	Gate-Drain Charge		--	10.1	--	nC
Switching Characteristics (Note4)						
t _{d(on)}	Turn-on Delay Time	VDD=-15V, ID=-6A, RG=2.5Ω, VGS=-10V	--	7	--	nS
t _r	Turn-on Rise Time		--	33	--	nS
t _{d(off)}	Turn-off Delay Time		--	130	--	nS
t _f	Turn-off Fall Time		--	132	--	nS
Source- Drain Diode Characteristics @ T_J = 25°C (unless otherwise stated)						
V _{SD}	Forward on voltage (Note3)	IS=-13A,VGS=0V	--	-0.8	-1.2	V

Note:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec
3. Pulse Test: pulse width ≤ 300 us, duty cycle ≤ 2%.
4. Guaranteed by design, not subject to production testing.



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Typical Characteristics

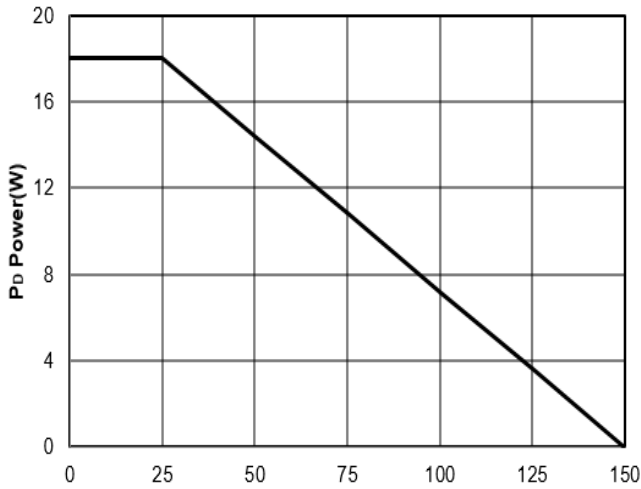


Figure1: Tj Junction Temperature (°C)

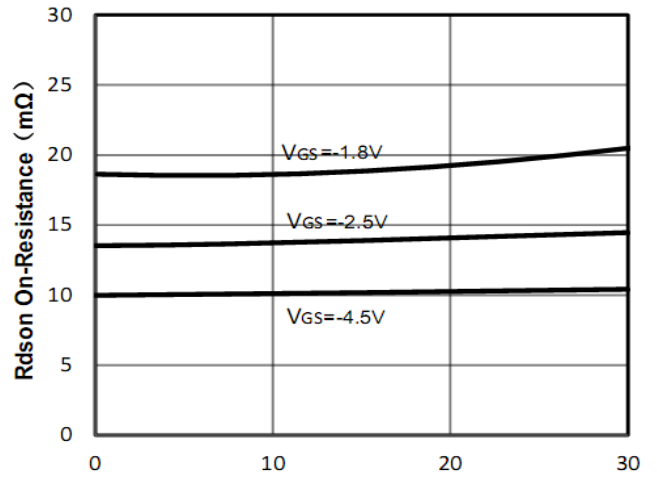


Figure2: Id Drain Current (A)

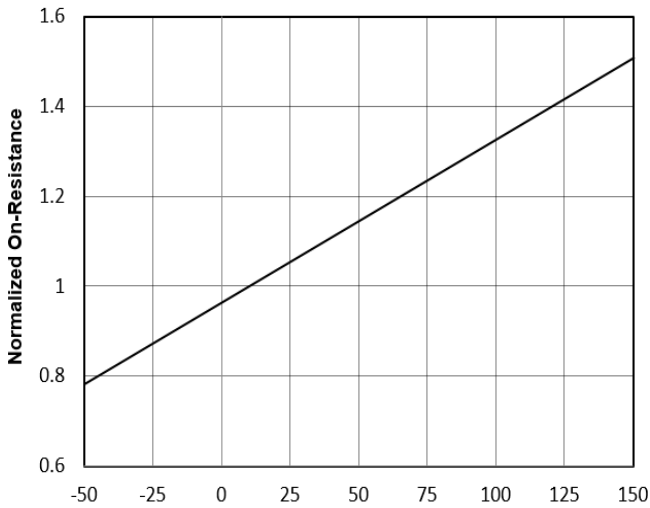


Figure3: Tj Junction Temperature (°C)

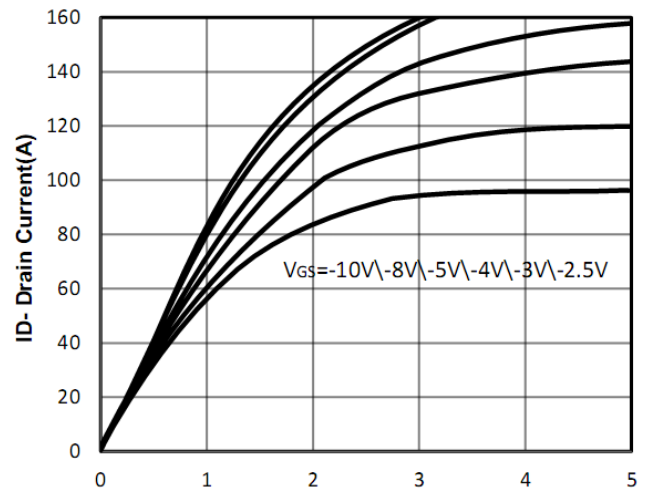


Figure4: Vds Drain-Source Voltage (V)

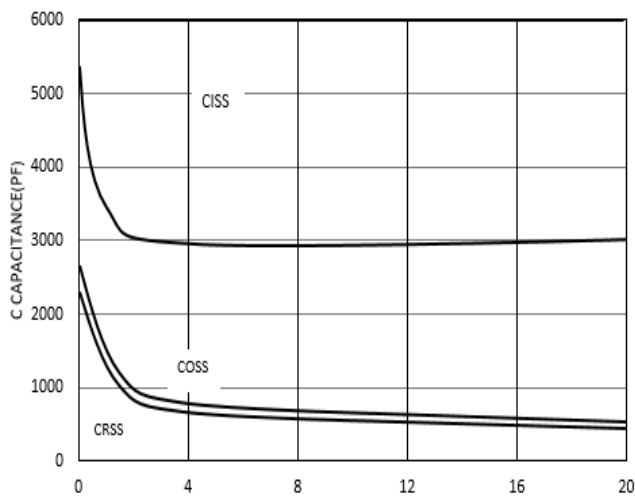


Figure5: Vds Drain-Source Voltage (V)

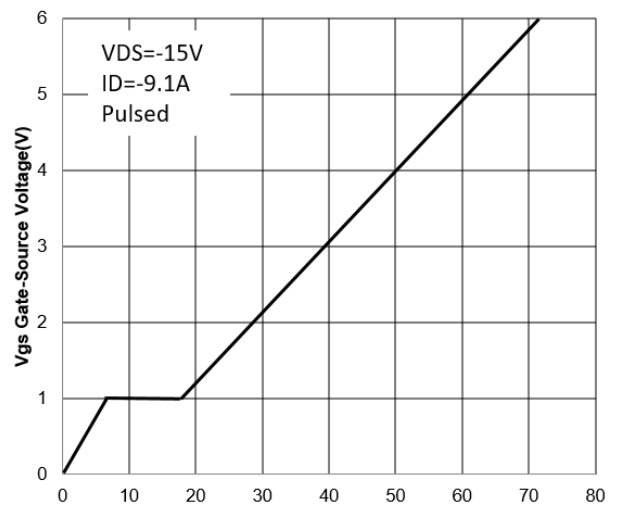


Figure6: Qg Gate Charge (nC)



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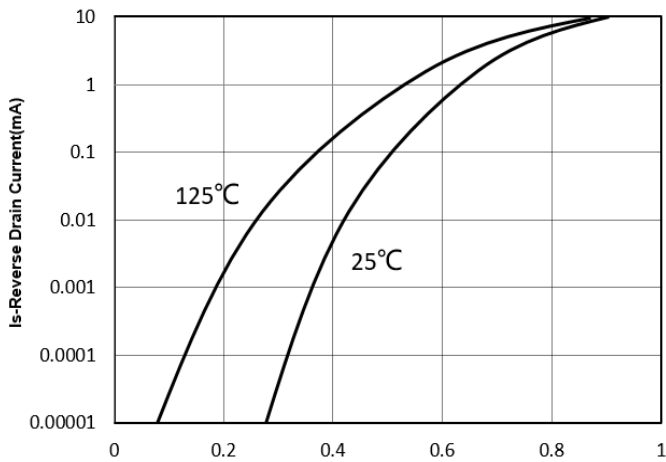


Figure7: -Vsd Source-Drain Voltage (V)

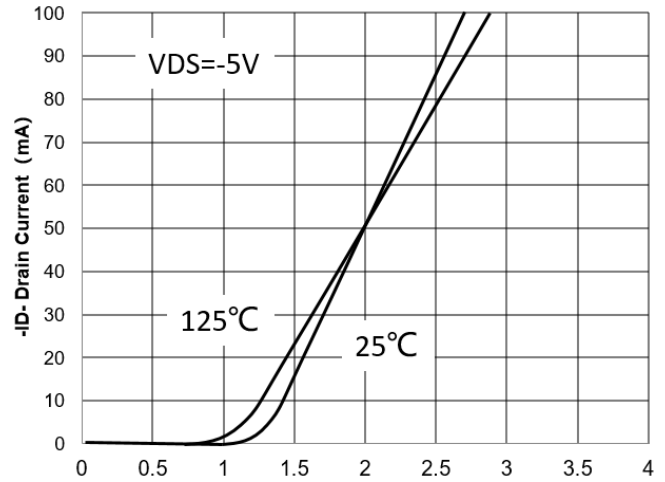


Figure8: -Vgs Gate-Source Voltage (V)

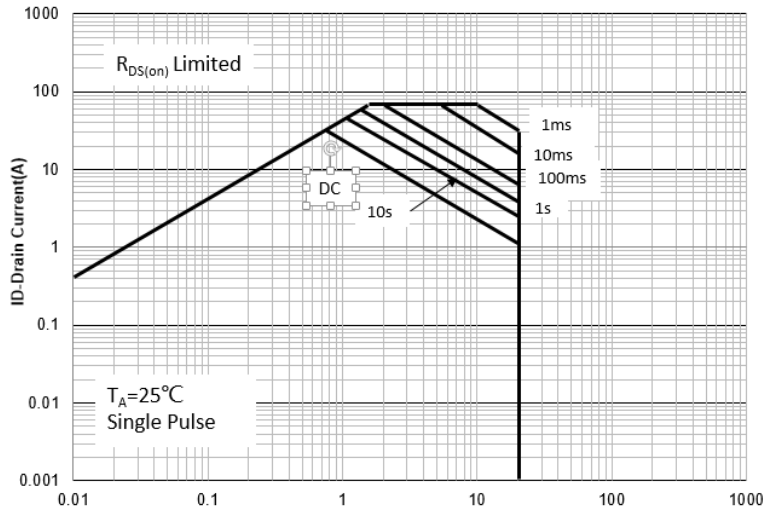


Figure9: -VDS Drain -Source Voltage (V)

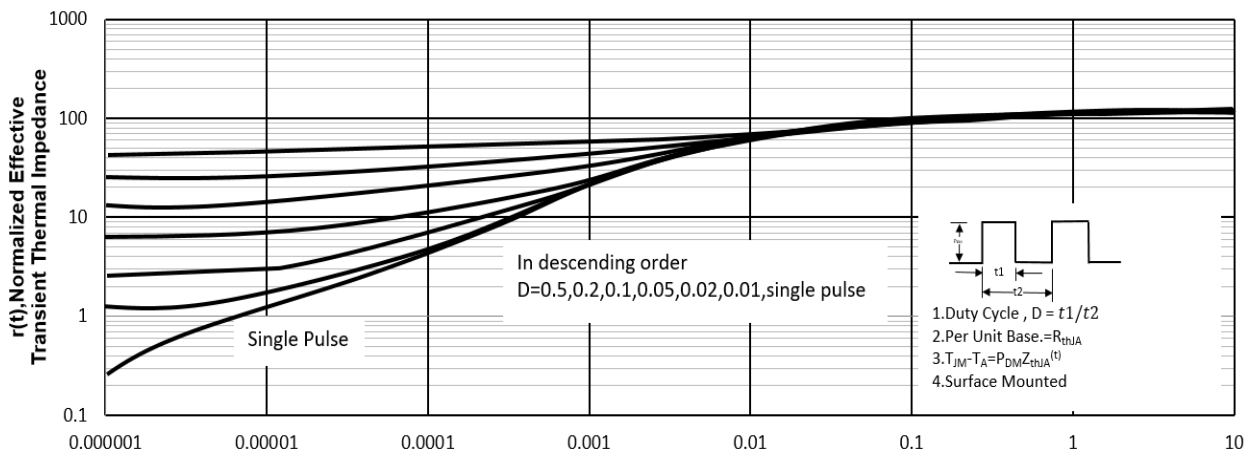
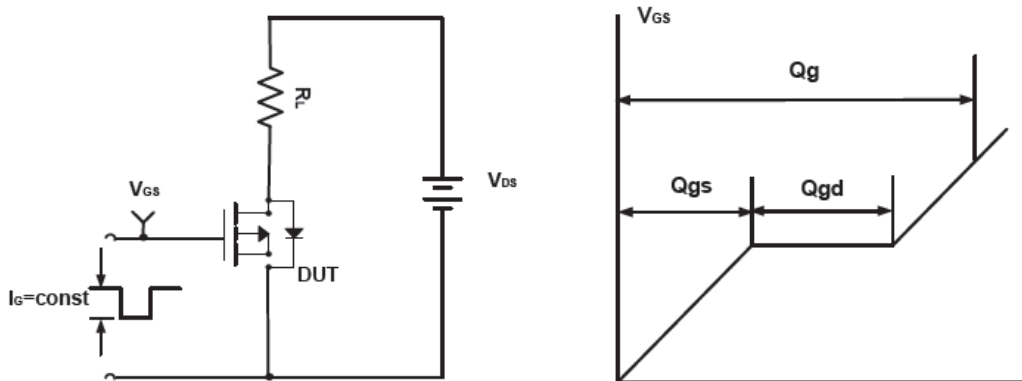
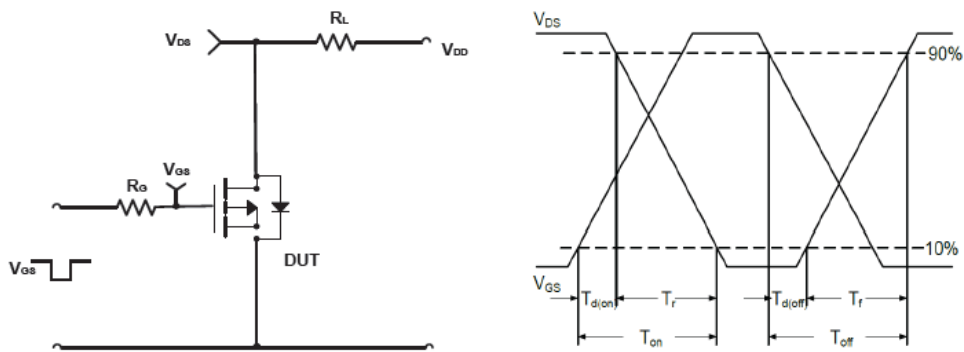
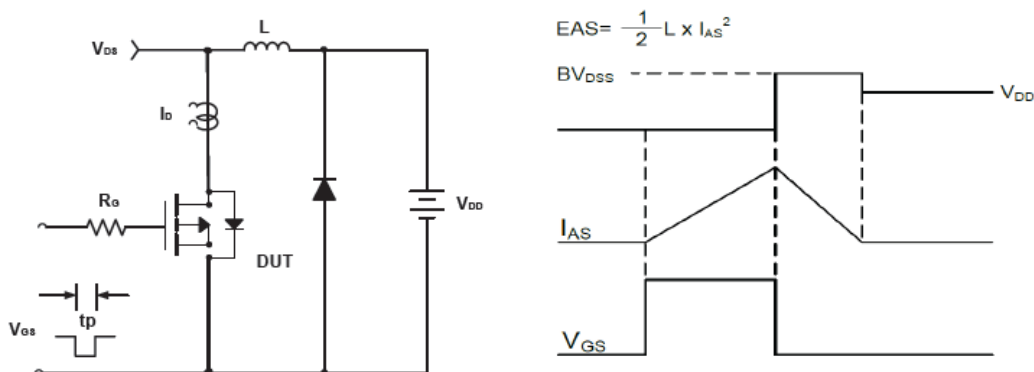


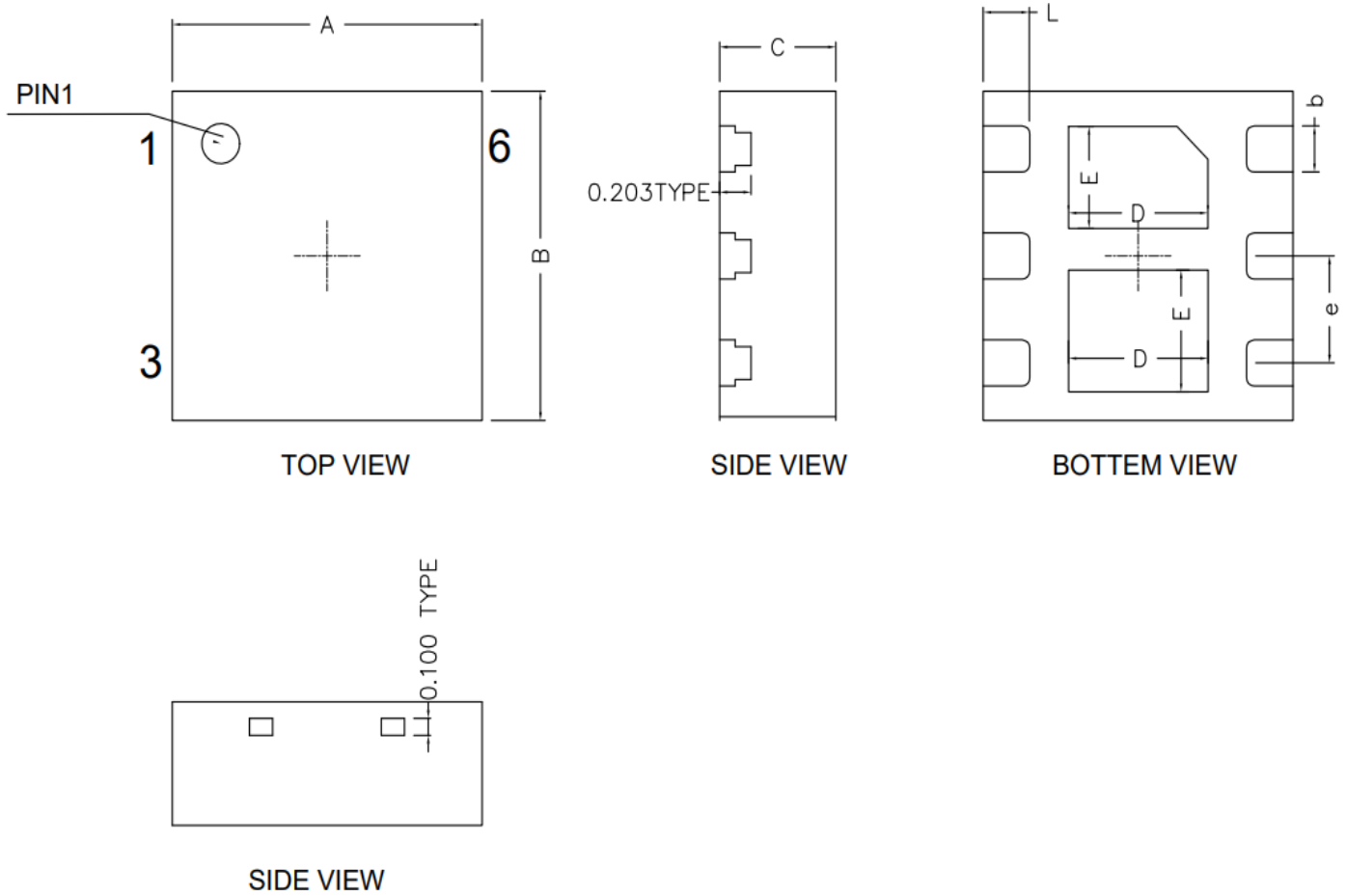
Figure10: Square Wave Pulse Duration (sec)

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Test Circuit and Waveform:

Figure A Gate Charge Test Circuit & Waveforms

Figure B Switching Test Circuit & Waveforms

Figure C Unclamped Inductive Switching Circuit & Waveforms



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DFN2X2-6L Package Outline Dimensions (Units: mm)



COMMON DIMENSIONS
(UNITS OF MEASURE IS mm)

	MIN	NORMAL	MAX
A	1.900	2.000	2.100
B	1.900	2.000	2.100
C	0.700	0.750	0.800
D	0.850	0.900	0.950
E	0.690	0.740	0.790
L	0.250	0.300	0.350
b	0.230	0.280	0.330
e		0.650	TYPE