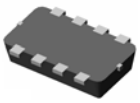
WPM2005B

Power MOSFET and Schottky Diode

Features

- Featuring a MOSFET and Schottky Diode
- Independent Pinout to each Device to Ease Circuit Design
- Ultra Low V_F Schottky

DFN3×2-8L



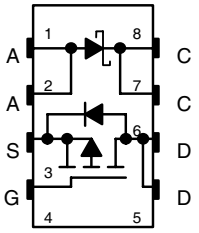
Applications

- Li--Ion Battery Charging
- High Side DC-DC Conversion Circuits
- High Side Drive for Small Brushless DC Motors
- Power Management in Portable, Battery Powered Products

MOSFET MAXIMUM RATINGS (T_J = 25℃ unless otherwise noted)

Parameter	Symbol	Value	Units
Drain-Source voltage	V_{DSS}	-20	V
Gate-Source Voltage	V_{GS}	±8	V
Continuous Drain Current	I_D	-2.7	A
Drain Current-Pulsed	I_{DM}	-10	A
Power Dissipation	P_D	1.1	W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{stg}	-55~150	℃
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	110	℃/W

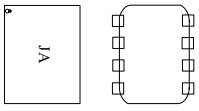
pin connections:



SCHOTTKY DIODE MAXIMUM RATINGS(T_J = 25℃ unless otherwise noted)

Parameter	Symbol	Limits	Unit
Peak repetitive reverse voltage	V_{RRM}	20	V
DC Blocking voltage	V_R	20	V
Average rectified forward current	I_F	1	A

Marking:



J = Specific Device Code
A = Date Code

Order information

Part Number	Package	Shipping
WPM2005B-8/TR	DFN3*2- 8L	3000 Tape & Reel

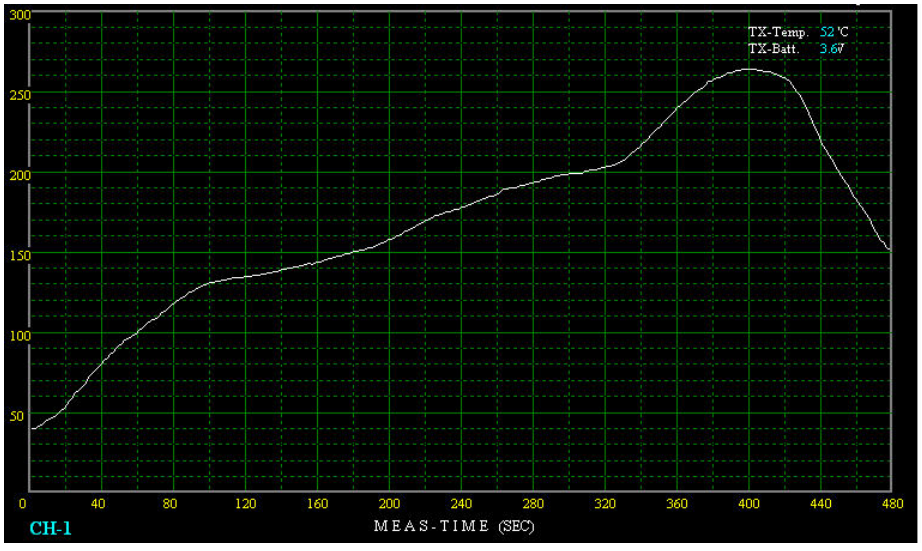
MOSFET ELECTRICAL CHARACTERISTICS(Tamb=25℃ unless otherwise specified)

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS} = 0V,I_D = -250μA	-20			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =-16V,V_{GS} = 0V			-1	μA
Gate –Source leakage current	I_{GSS}	V_{GS} = ±8V, V_{DS} = 0V			±100	nA
On Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	V_{GS} = V_{DS}, I_D =-250μA	-0.45		-0.81	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = -4.5V, I_D = -2.7A			125	mΩ
		V_{GS} = -2.5V,I_D = -2.2A			160	mΩ
Forward Transconductance	g_{FS}	V_{DS} = -10V, I_D = -2.7A		7.0		S
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS} = -10V, V_{GS} = 0V, f = 1.0 MHz			300	pF
Output Capacitance	C_{oss}				150	pF
Reverse Transfer Capacitance	C_{rss}				50	pF
Switching Characteristics						
Turn-On Delay Time	$t_{d(on)}$	V_{GS} = -4.5V, V_{DD} = -10V, I_D = -1.0A, R_G=6.0Ω,			25	ns
Turn-On Rise Time	t_r				45	ns
Turn-Off Delay Time	$t_{d(off)}$				45	ns
Turn-Off Fall Time	t_f				40	ns
Total Gate Charge	$Q_{G(TOT)}$	V_{DS} = -10V,I_D = -2.7A, V_{GS} =-4.5V		3.0	6.5	nC
Threshold gate charge	$Q_{G(TH)}$			0.2		nC
Gate-Source Charge	Q_{GS}			1.4		nC
Gate-Drain Charge	Q_{GD}			0.7		nC
Drain-Source Diode Characteristics and Maximun Ratings						
Forward Diode Voltage	V_{SD}	V_{GS} = 0V,I_S = -0.9A			-1.5	V

SCHOTTKY DIODE ELECTRICAL CHARACTERISTICS (TJ = 25° C unless otherwise noted)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Forward voltage	V_{F1}		0.425		V	I_F=0.1A
	V_{F2}		0.480			I_F=0.5A
	V_{F3}			0.575		I_F=1A
Reverse current	I_{R1}			20	μA	V_R=10V
	I_{R2}			100	μA	V_R=20V

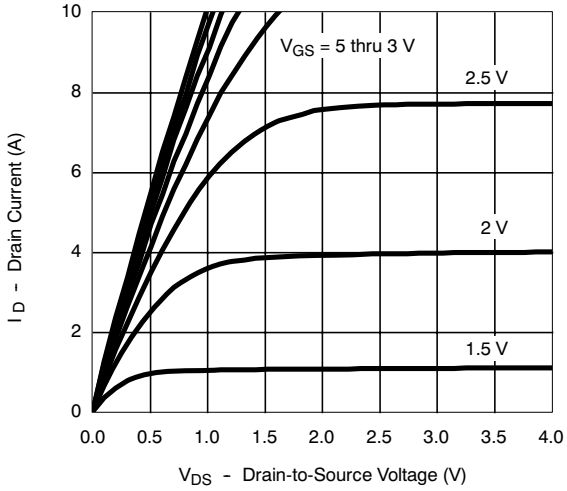
Welding temperature curve



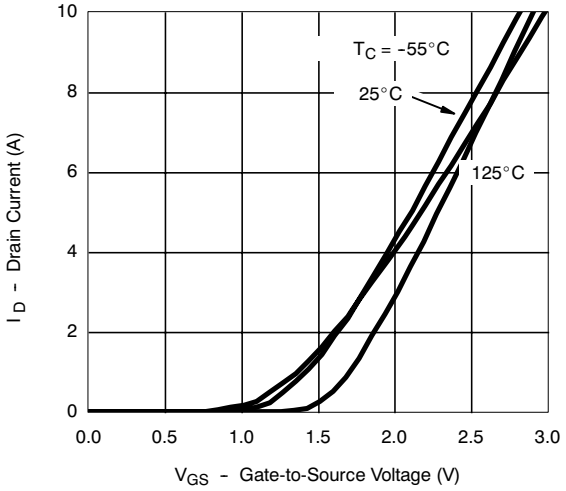
MSL=1

Typical Characteristics (T_J = 25°C unless otherwise noted)

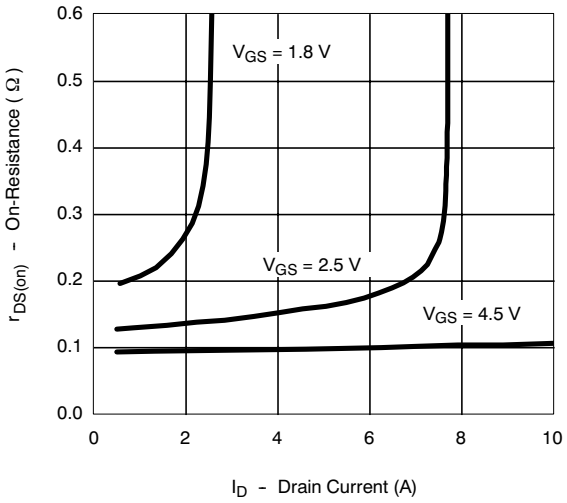
Output Characteristics



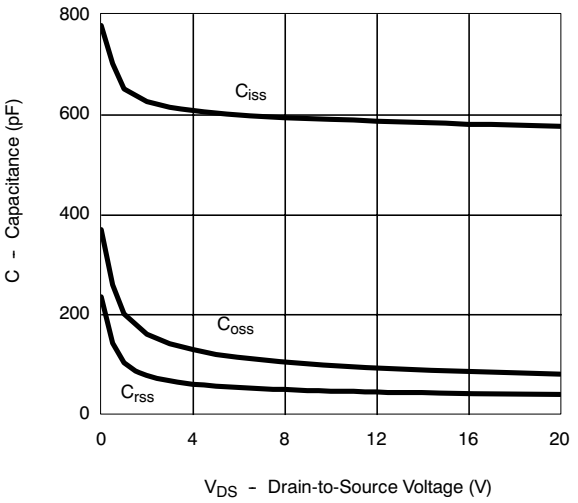
Transfer Characteristics



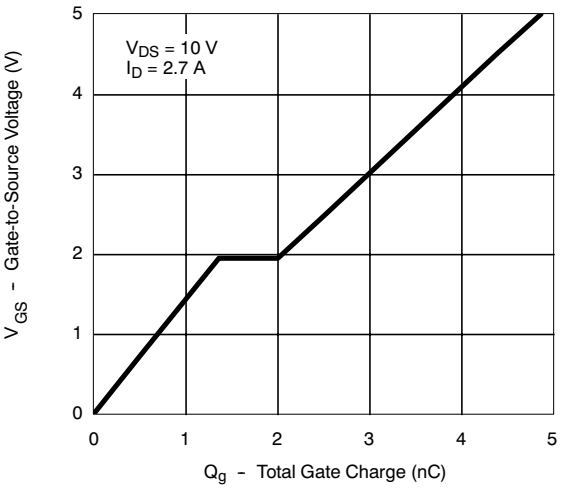
On-Resistance vs. Drain Current



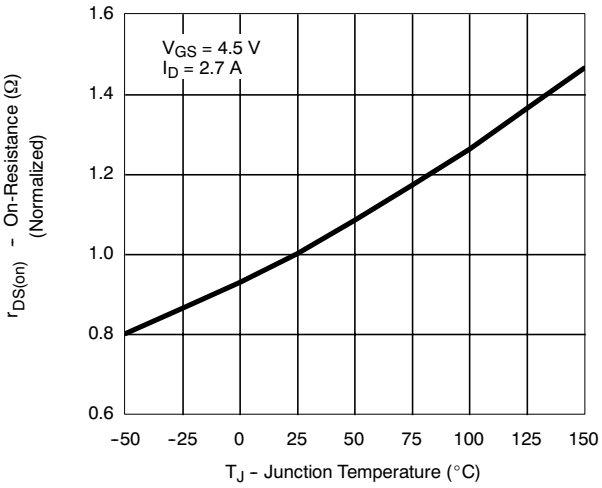
Capacitance



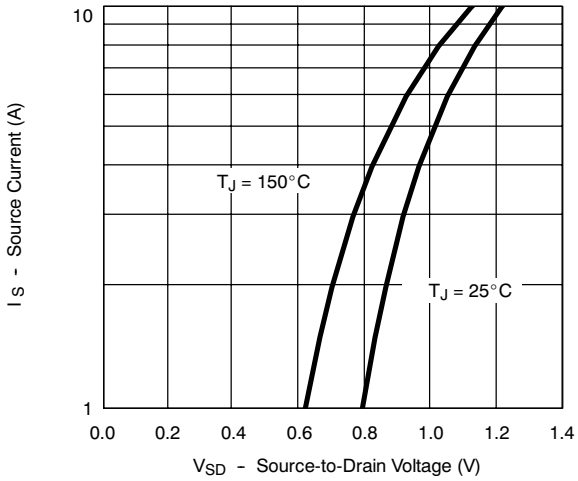
Gate Charge



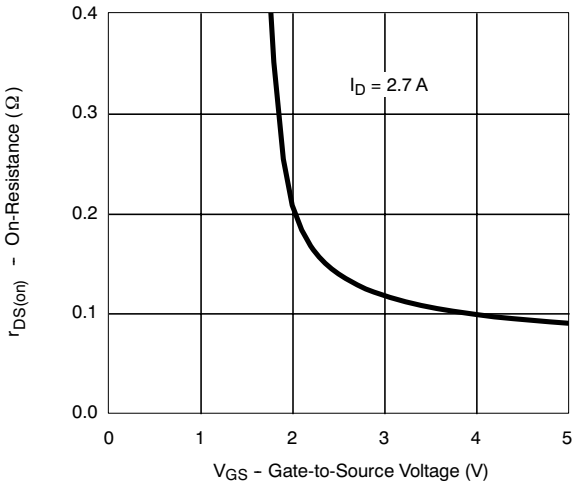
On-Resistance vs. Junction Temperature



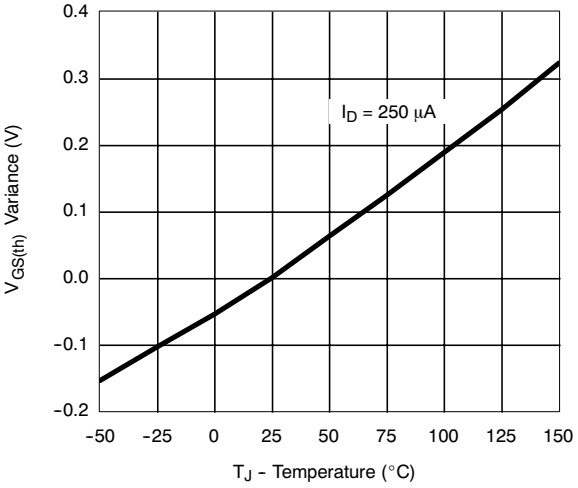
Source-Drain Diode Forward Voltage



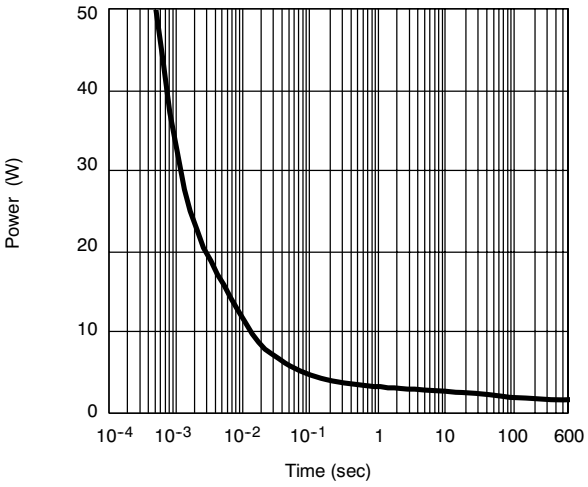
On-Resistance vs. Gate-to-Source Voltage



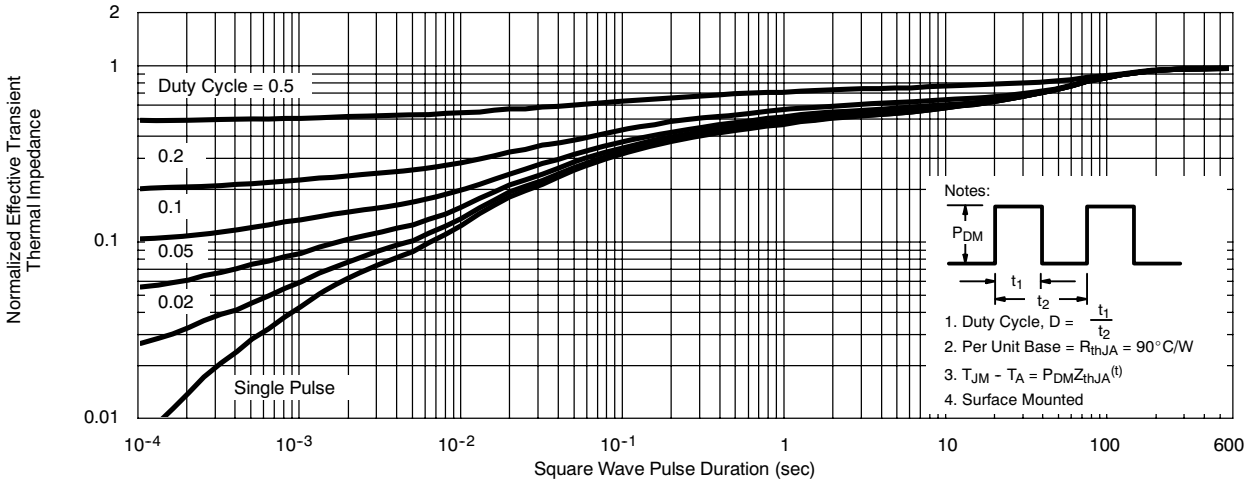
Threshold Voltage



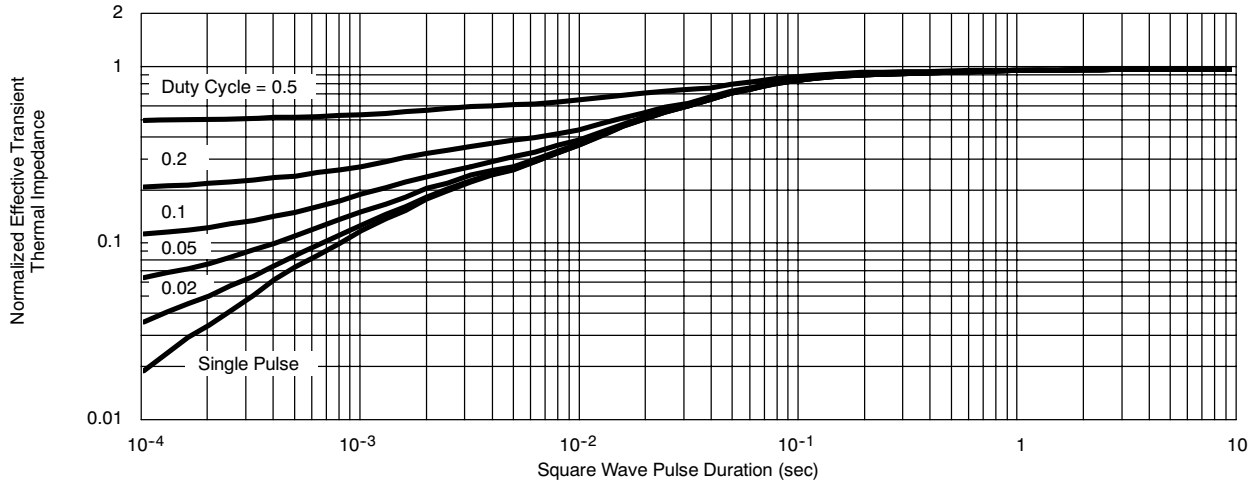
Single Pulse Power



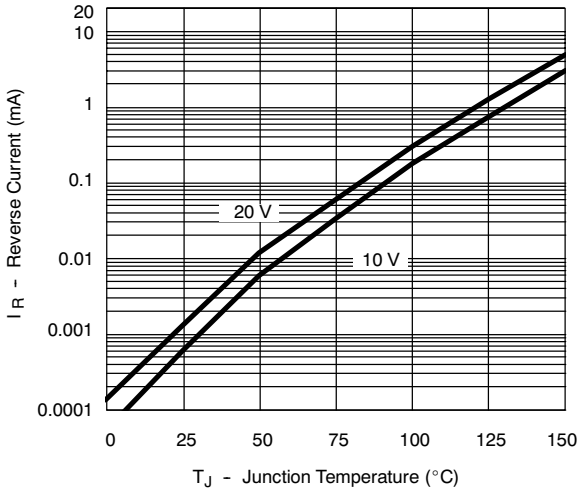
Normalized Thermal Transient Impedance, Junction-to-Ambient



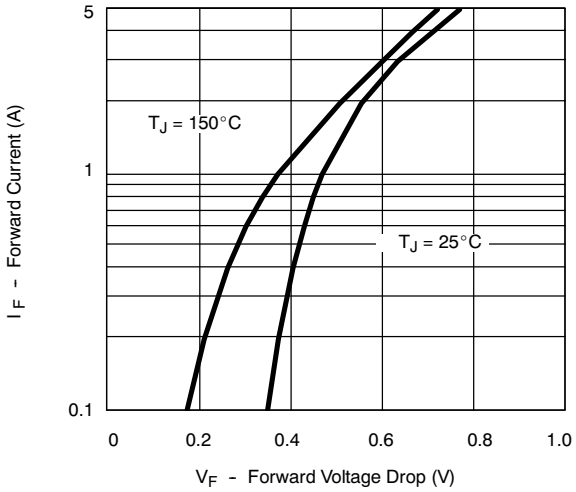
Normalized Thermal Transient Impedance, Junction-to-Foot



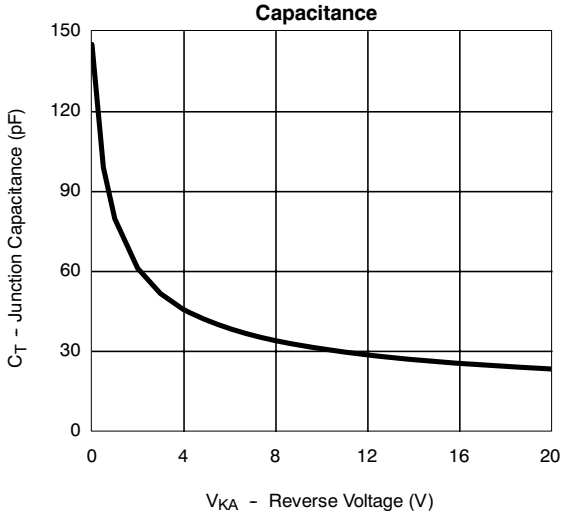
Reverse Current vs. Junction Temperature



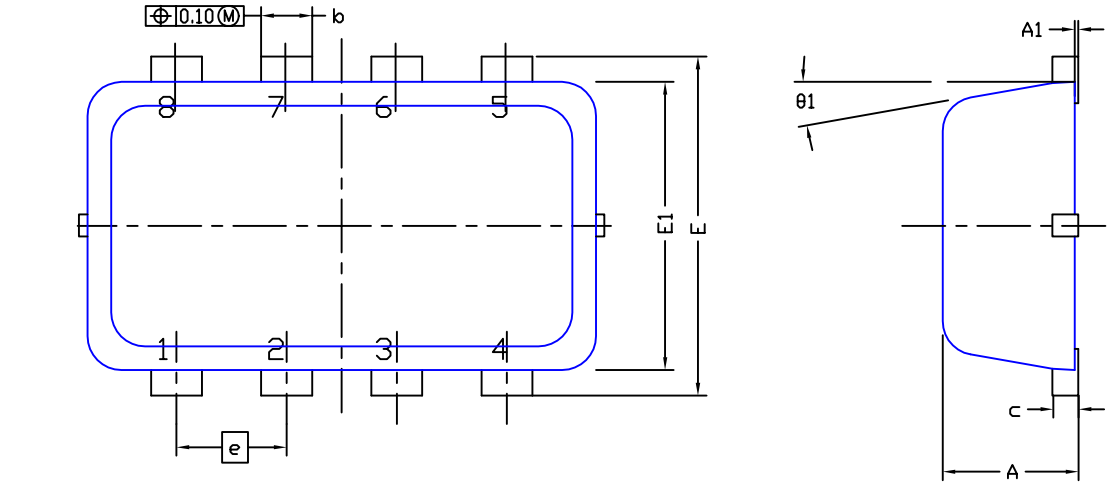
Forward Voltage Drop

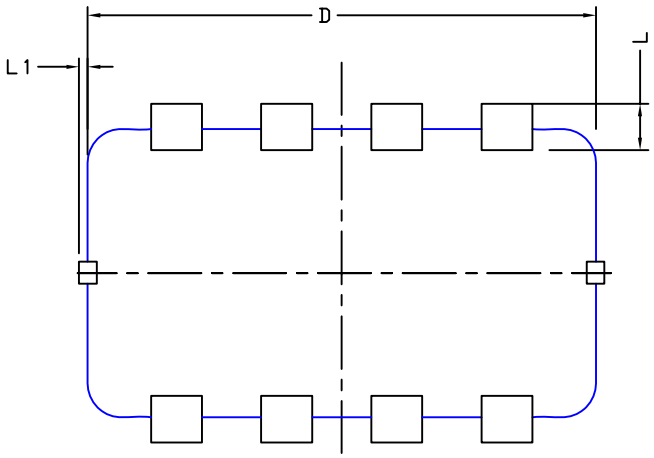


Capacitance



DFNWB3X2-8L(P0.65T0.75/0.85) PACKAGE OUTLINE DIMENSIONS





DIM.	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.700	0.80	0.900	0.0276	0.0315	0.0354
A1	0.00	---	0.05	0.000	---	0.002
b	0.24	0.30	0.35	0.009	0.012	0.014
c	0.08	0.152	0.25	0.003	0.006	0.010
D	3.00 BSC			0.118 BSC		
E	2.00 BSC			0.079 BSC		
E1	1.70 BSC			0.067 BSC		
e	0.65 BSC			0.026 BSC		
L	0.20	0.275	0.400	0.008	0.011	0.0157
L1	0	---	0.100	0	---	0.004
θ1	0°	10°	12°	0°	10°	12°