

DESCRIPTION

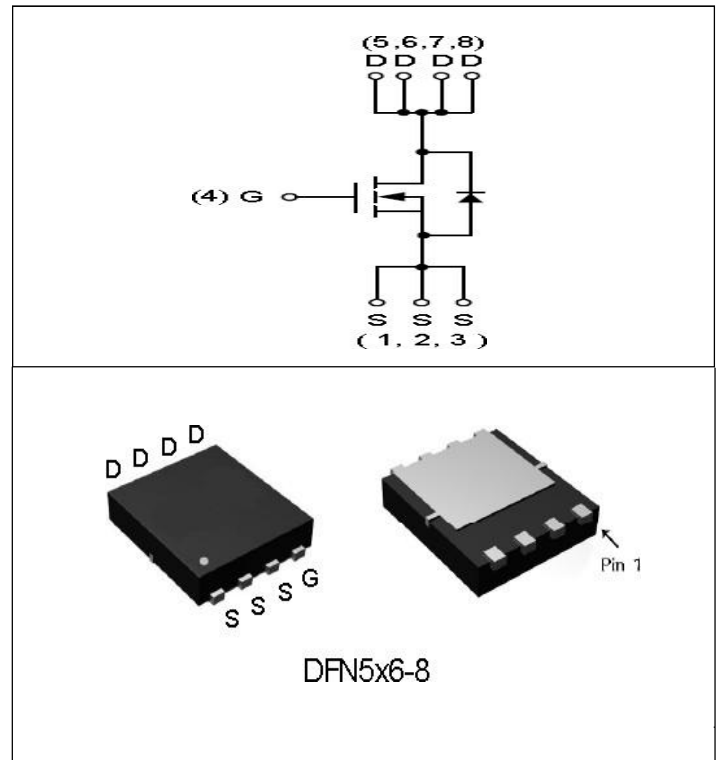
The CX60R10G is the high cell density trenched N-CH MOSFETs, which provide excellent R_{DS(on)} and GATE charge for mosr of the synchronous Rectification

GENERAL FEATURES

- V_{DS}= 60V
R_{DS(ON)} < 8m Ω @ V_{GS}= 10V
R_{DS(ON)} <14m Ω @ V_{GS}=4.5V
- Low R_{DS(on)} & FOM
- Extremely low switching loss
- Excellent reliability and uniformity
- Fast switching and soft recovery

Application

- PD charger
- Switching voltage regulator
- DC-DC convertor
- Switched mode power supply



■ Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-source Voltage	V _{DS}	60	V
Gate-source Voltage	V _{GS}	±20	V
Drain Current	I _D	T _C =25°C	68
		T _C =100°C	43
Pulsed Drain Current ^A	I _{DM}	204	A
Total Power Dissipation	P _D	81	W
Single Pulse Avalanche Energy ^B	E _{AS}	91	mJ
Thermal Resistance Junction-to-Case ^C	R _{θJC}	1.54	°C/W
Thermal resistance, junction-ambient ⁴⁾	R _{θJA}	62	°C/W
Junction and Storage Temperature Range	T _J , T _{ST} G	-55~+150	°C

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
0V,V						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V, I _D =250μA	60			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 24V, V _{GS} =0V			1	μA
					10	
Gate-Body Leakage Current	I _{GSS}	V _{GS} = ±20V, V _{DS} =0V			±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D =250μA	1.2	1.5	2.2	V
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} = 10V, I _D =20A		7.5	10	mΩ
		V _{GS} = 4.5V, I _D =10A		10	8.0	
Diode Forward Voltage	V _{SD}	I _S =20 A, V _{GS} =0V		0.7	1.3	V
Dynamic Parameters						
Input Capacitance	C _{iss}	V _{DS} =50V, V _{GS} =0V, f=1MHZ		1204		pF
Output Capacitance	C _{oss}			194.1		
Reverse Transfer Capacitance	C _{rss}			9.9		
Switching Parameters						
Total Gate Charge	Q _g	V _{GS} =10V, V _{DS} =50V, I _D = 25A		17.9		nC
Gate-Source Charge	Q _{gs}			3.8		
Gate-Drain Charge	Q _{gd}			4.2		
Gate plateau voltage						
Reverse Recovery Charge	Q _{rr}	I _S =20A, V _{GS} =0V, di _S /dt=100A/uS		25		
Reverse Recovery Time	t _{rr}			26		
Turn-on Delay Time	t _{D(on)}	V _{DS} =15V, I _D =15A, R _G =3.0 Ω V _{GS} =10V		TBC		ns
Turn-on Rise Time	t _r			TBC		
Turn-off Delay Time	t _{D(off)}			TBC		
Turn-off fall Time	t _f			TBC		

A. Pulse Test: Pulse Width ≤ 300us, Duty cycle ≤ 2%.

B. T_J=25°C, V_{DD}=20V, V_G=10V, L=0.5mH, R_g=25 Ω

C. R_{θJA} 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. R_{θJC} is guaranteed by design, while R_{θJA} is determined by the board design. The maximum rating presented here is based on mounting on a 1 in 2 pad of 2oz copper.

Typical Performance Characteristics

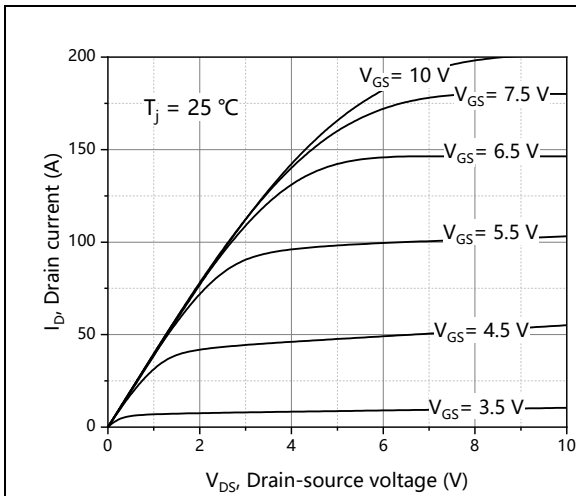


Figure 1. Typ. output characteristics

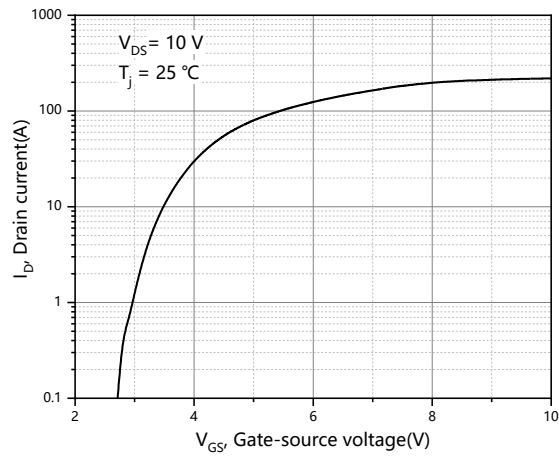


Figure 2. Typ. transfer characteristics

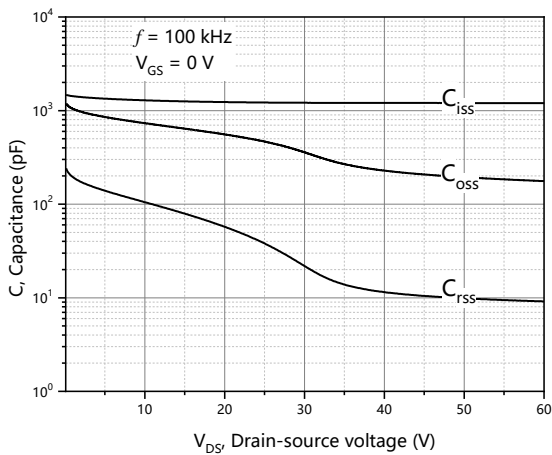


Figure 3. Typ. capacitances

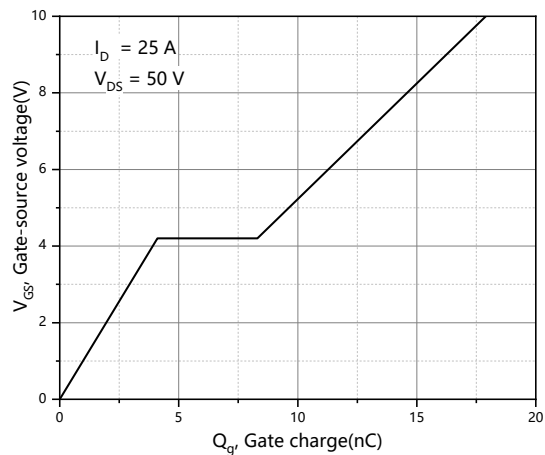


Figure 4. Typ. gate charge

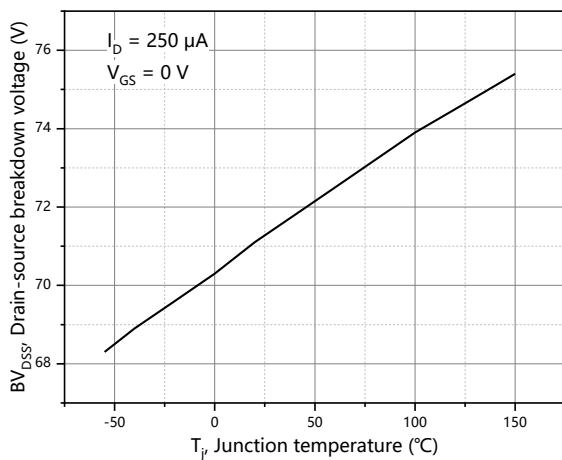


Figure 5. Drain-source breakdown voltage

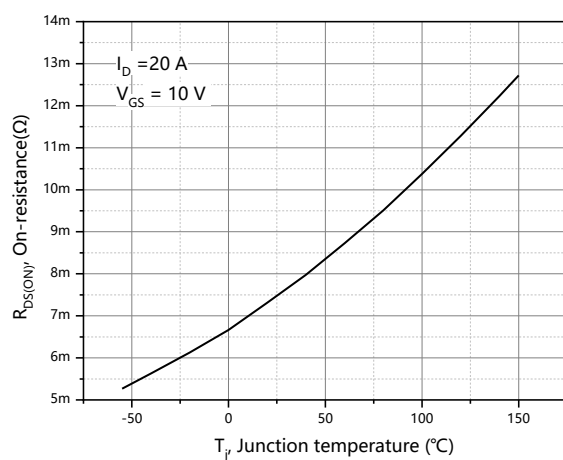


Figure 6. Drain-source on-state resistance

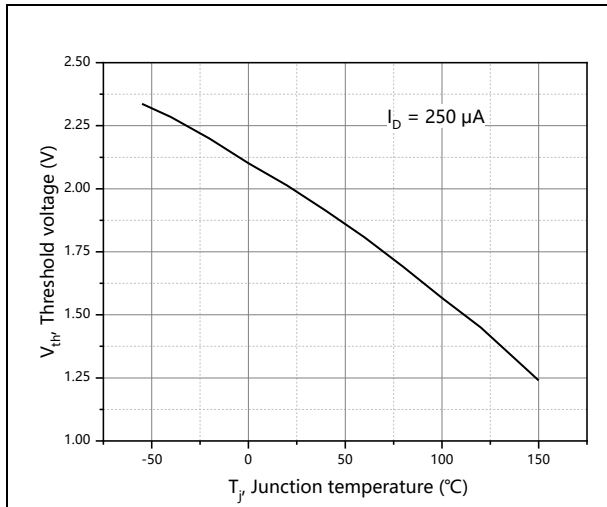


Figure 7. Threshold voltage

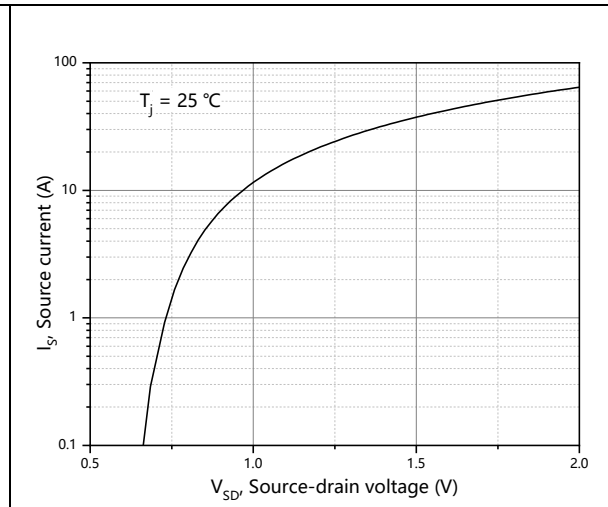


Figure 8. Forward characteristic of body diode

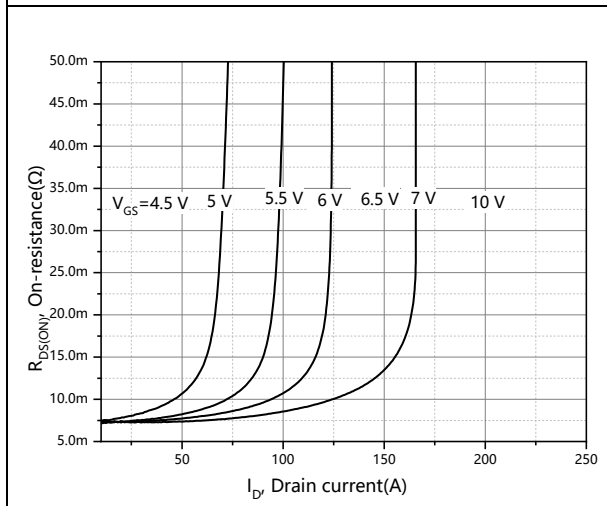


Figure 9. Drain-source on-state resistance

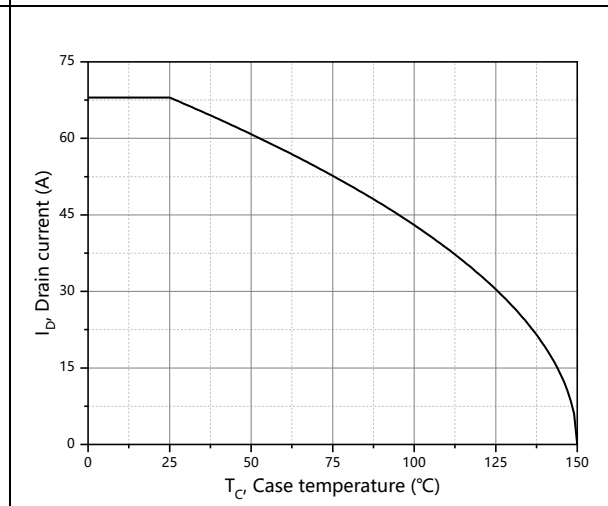


Figure 10. Drain current

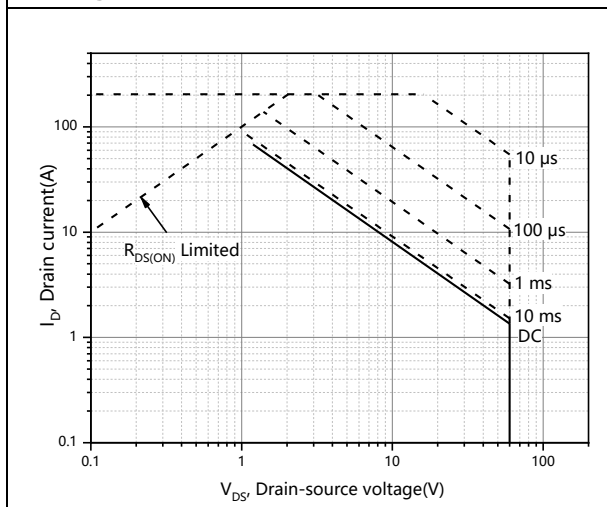


Figure 11, Safe operation area TC=25 °C

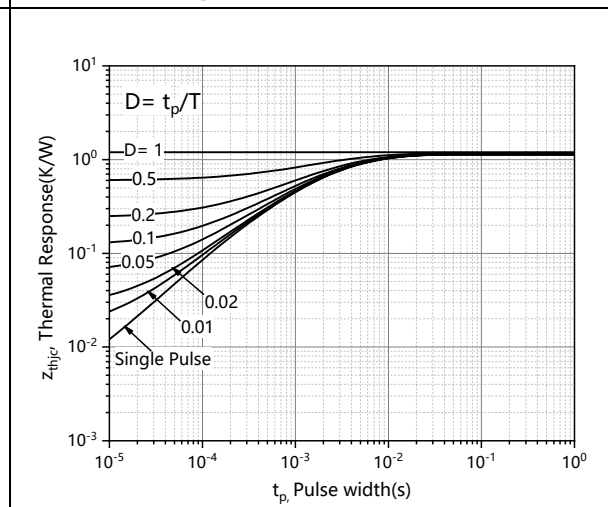


Figure 12, Max. transient thermal impedance

Test circuits and waveforms

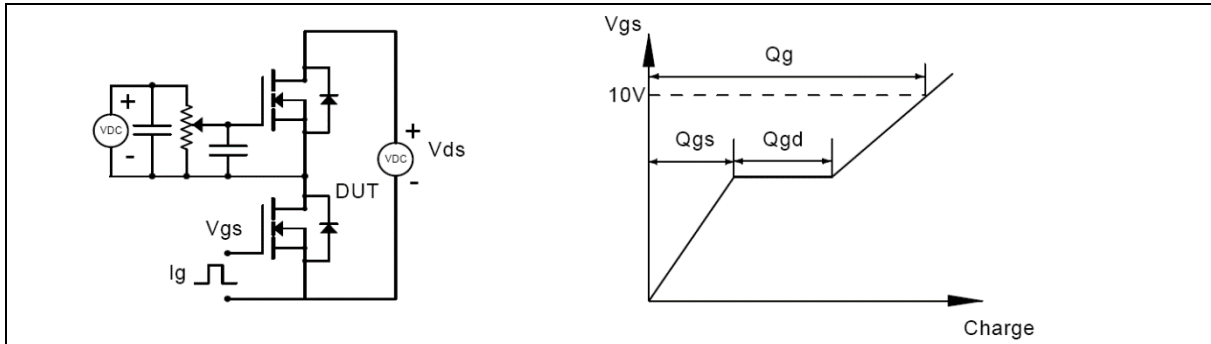


Figure 1. Gate charge test circuit & waveform

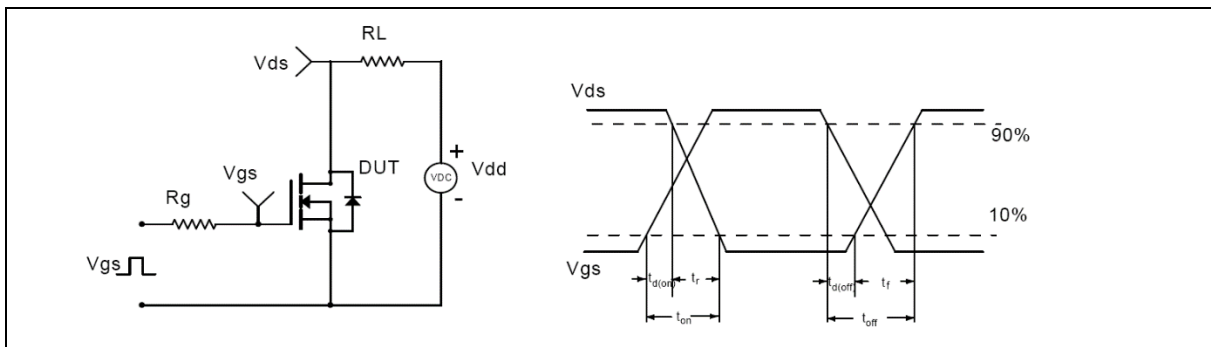


Figure 2. Switching time test circuit & waveforms

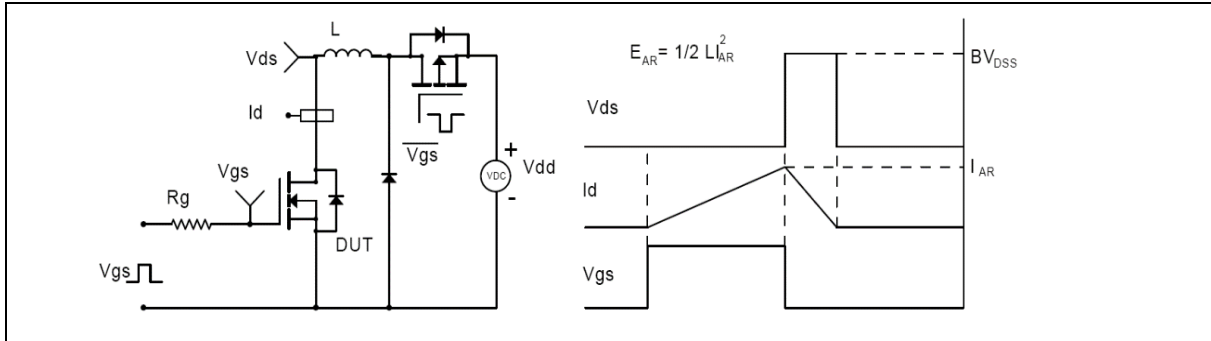


Figure 3. Unclamped inductive switching (UIS) test circuit & waveforms

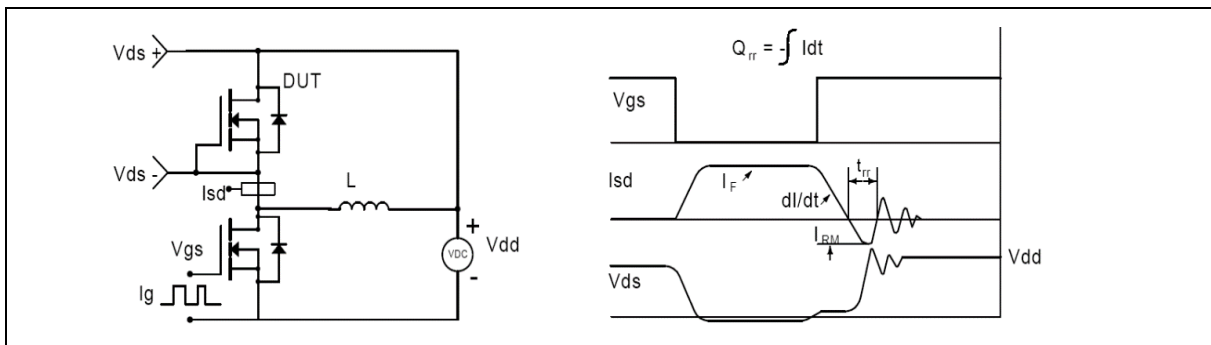
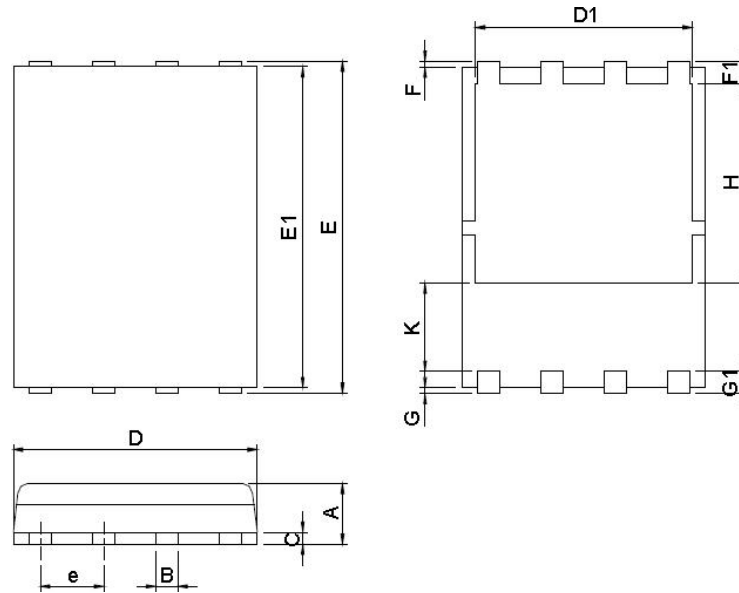


Figure 4. Diode reverse recovery test circuit & waveforms

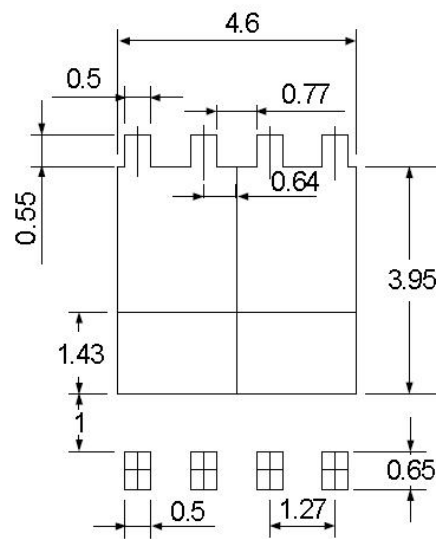
Package Information

■ DFN5*6-8 Package



DIMENSIONS	DFN5x6-8			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	0.90	1.20	0.035	0.047
B	0.3	0.51	0.012	0.020
C	0.19	0.25	0.007	0.010
D	4.80	5.30	0.189	0.209
D1	4.00	4.40	0.157	0.173
E	5.90	6.20	0.232	0.244
E1	5.50	5.80	0.217	0.228
e	1.27 BSC		0.050 BSC	
F	0.05	0.30	0.002	0.012
F1	0.35	0.75	0.014	0.030
G	0.05	0.30	0.002	0.012
G1	0.35	0.75	0.014	0.030
H	3.34	3.9	0.131	0.154
K	0.762	-	0.03	-

RECOMMENDED LAND PATTERN



UNIT: mm

Note : 1.Dimension D, D1,D2 and E1 do not include mold flash or protrusions.
Mold flash or protrusions shall not exceed 10 mil.