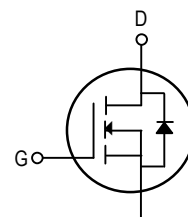


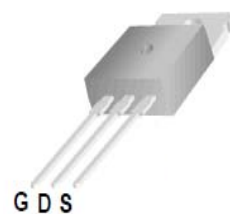
Features

- 100V/100A
RDS(ON)=7.1mΩ (typ.) @ VGS=10V
- Lead free and Green Device Available
- Low Rds-on to Minimize Conductive Loss
- High avalanche Current
- 100% Avalanche Tested



Application

- Power Supply
- DC-DC Converters
- UPS
- Battery Management System



TO-220

Order Information

Product	Package	Marking	Packing
IRF3710PBF-CN	TO-220	CP7R1N10H	50PCS/Tube

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

Symbol	Parameter		Maximum	Unit
V _{DSS}	Drain-to-Source Voltage		100	V
V _{GSS}	Gate-to-Source Voltage		±25	V
I _D ³	Continuous Drain Current	T _C =25°C	100	A
		T _C =100°C	80	
I _{DM} ⁴	Pulsed Drain Current		400	A
EAS ⁵	Avalanche energy		550	mJ
PD	Maximum Power Dissipation	T _C =25°C	200	W
T _J , T _{STG}	Junction & Storage Temperature Range		-55~150	°C

Thermal Characteristics

Symbol	Parameter	Typical	Unit
Rθjc	Thermal Resistance-Junction to Case	0.63	°C/W
Rθja	Thermal Resistance-Junction to Ambient	62.5	

Electrical Characteristics (TA=25°C unless otherwise noted)

Symbol	Parameter	Test Conditions	Min.	Typ	Max.	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	100	—	—	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =100V, V _{GS} =0V	—	—	1	uA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250uA	2	3	4	V
I _{GSS}	Gate Leakage Current	V _{GS} =±25V, V _{DS} =0V	—	—	±100	nA
R _{DS(on)} ¹	Drain-Source On-Resistance	V _{GS} =10V, I _D =50A	—	7.1	8.8	mΩ
			—	—	—	
Diode Characteristics						
V _{SD} ¹	Diode Forward Voltage	I _{SD} =50A, V _{GS} =0V	—	0.9	1.3	V
I _S ³	Diode Continuous Forward Current		—	—	97	A
t _{rr}	Reverse Recovery Time	I _S =50A,	—	45	—	nS
Q _{rr}	Reverse Recovery Charge	dI/dt=100A/us	—	65	—	nC
Dynamic Characteristics ²						
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =25V Frequency=1MHz	—	3260	—	pF
C _{oss}	Output Capacitance		—	370	—	
C _{rss}	Reverse Transfer Capacitance		—	301	—	
t _{d(on)}	Turn-On Delay Time	V _{DS} =50V, I _D =50A, V _{GS} =10V, (Note 1,4)	—	29	—	nS
t _r	Rise Time		—	57	—	
t _{d(off)}	Turn-Off Delay Time		—	77	—	
t _f	Fall Time		—	35	—	
Gate Charge Characteristics ²						
Q _g	Total Gate Charge	V _{DS} =80V, I _D =50A, V _{GS} =10V, (Note 1,4)	—	103	—	nC
Q _{gs}	Gate-to-Source Charge		—	24	—	
Q _{gd}	Gate-to-Drain Charge		—	43	—	

Note: 1: Pulse test; pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

2: Guaranteed by design, not subject to production testing.

3: Package limitation current is 100A. Calculated continuous current based on maximum allowable junction temperature.

4: Repetitive rating, pulse width limited by max junction temperature.

5: Starting $T_J = 25^\circ C, L = 1mH, I_{AS} = 25A$.

Typical Characteristics

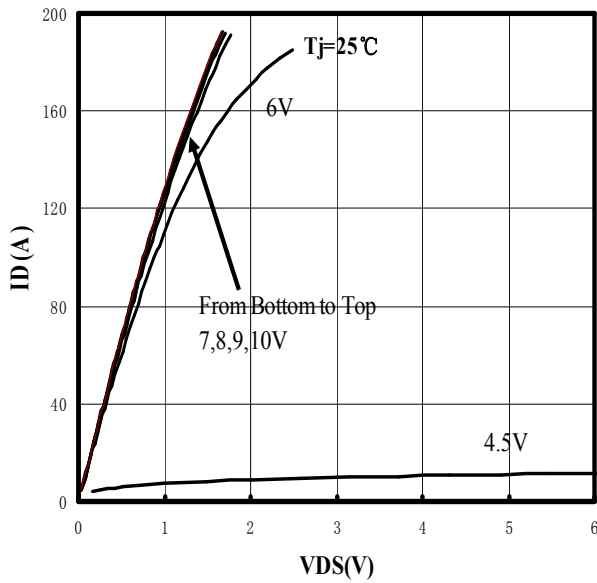


Figure 1. Typ. Output Characteristics

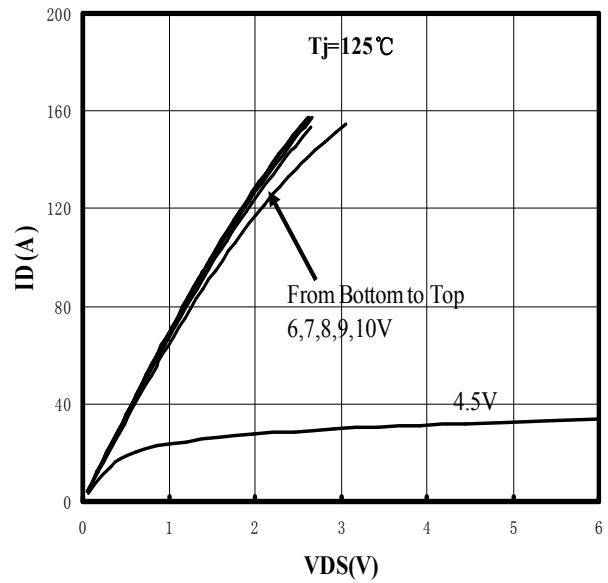


Figure 2. Typ. Output Characteristics

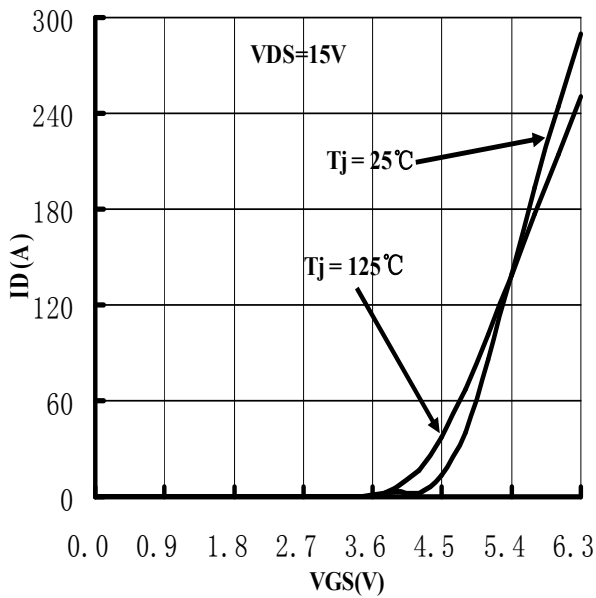


Figure 3. Transfer Characteristics

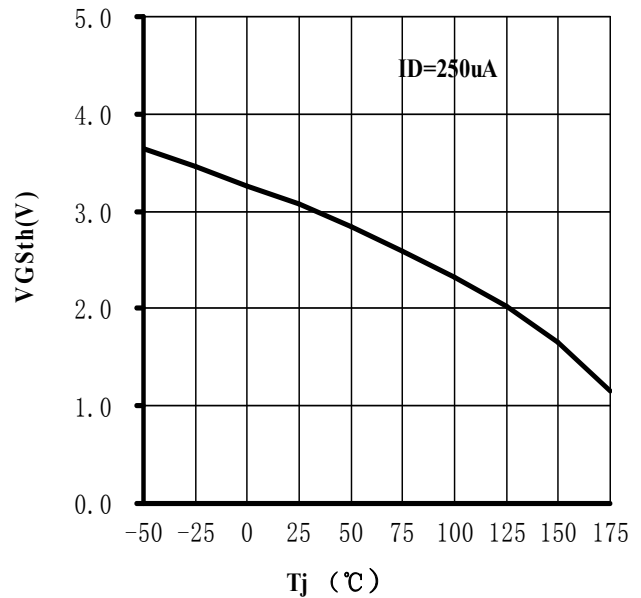
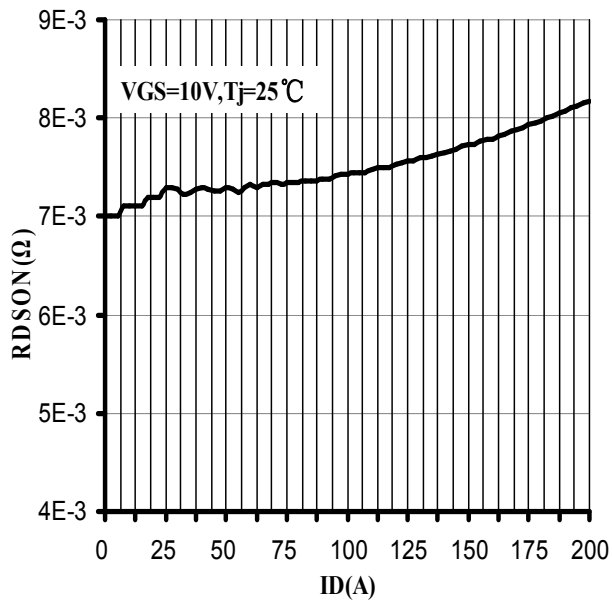
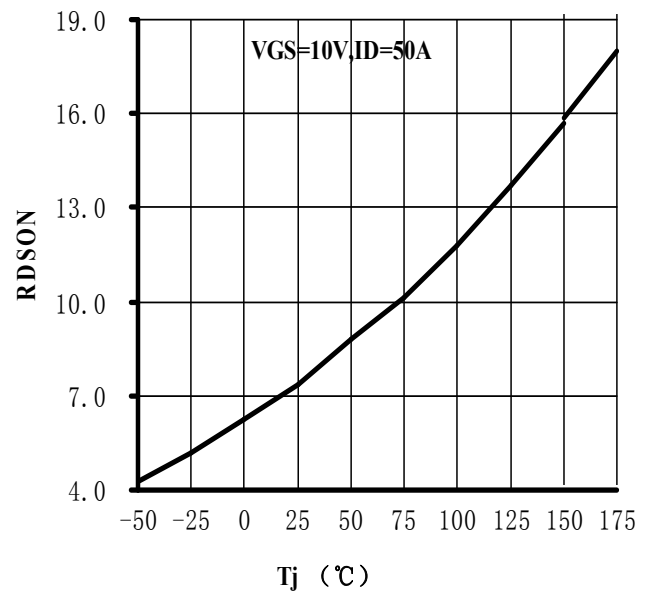
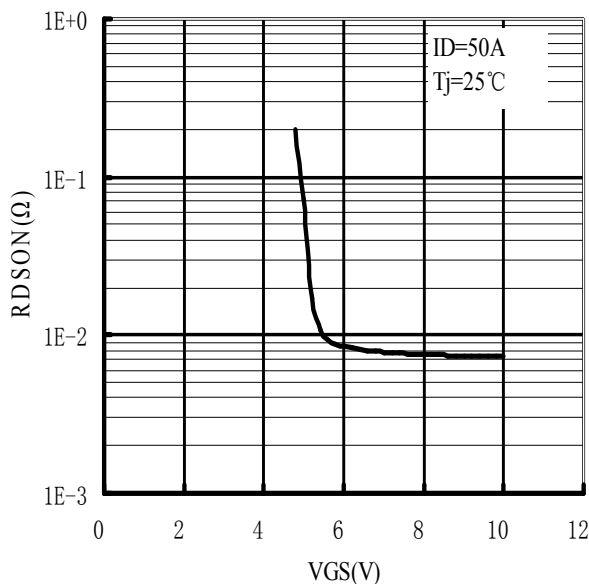
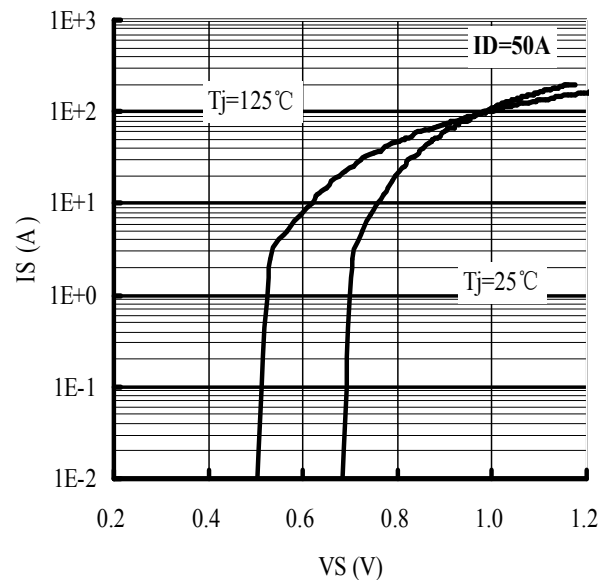


Figure 4. Gate Threshold Voltage Characteristics


Figure 5. Rdson vs. Drain Current Characteristics

Figure 6. Rdson vs. Junction Tem Characteristics

Figure 7. Rdson vs. VGS Characteristics

Figure 8. IS vs. VSD Characteristics

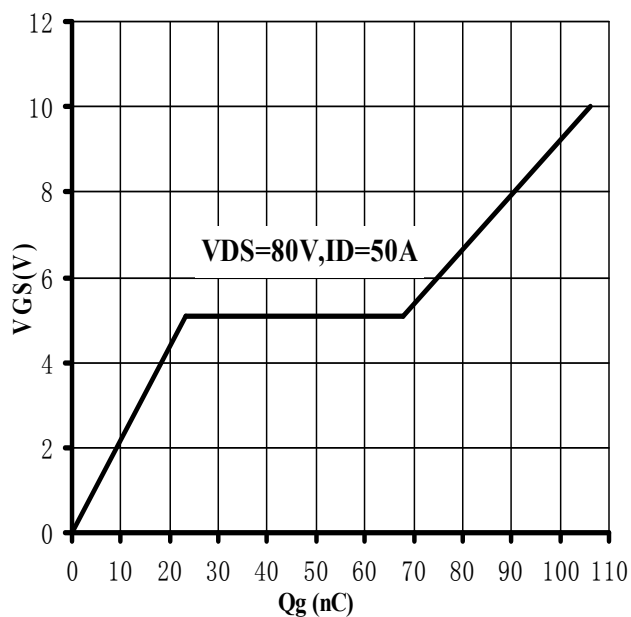


Figure 9. Gate Charge Characteristics

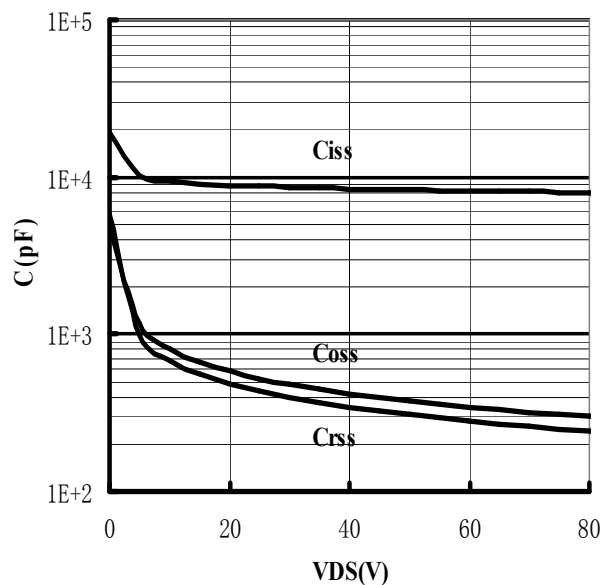


Figure 10. Capacitance Characteristics

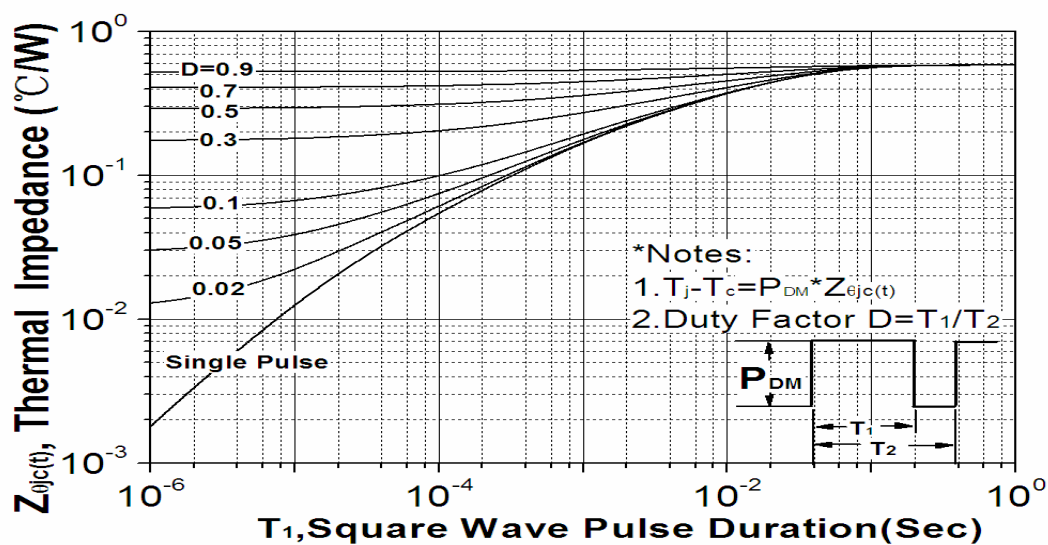
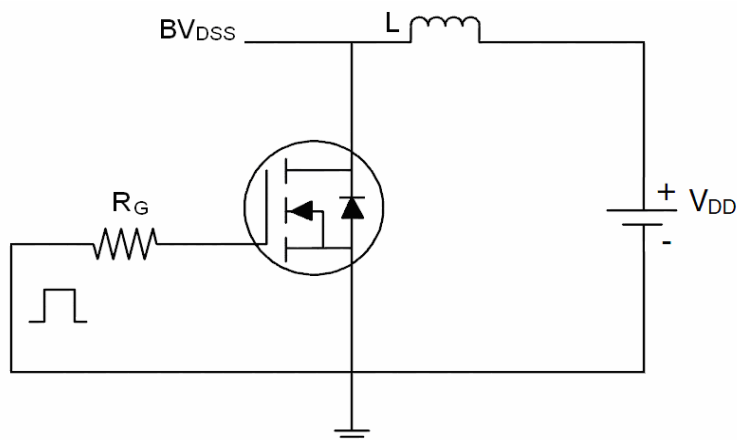
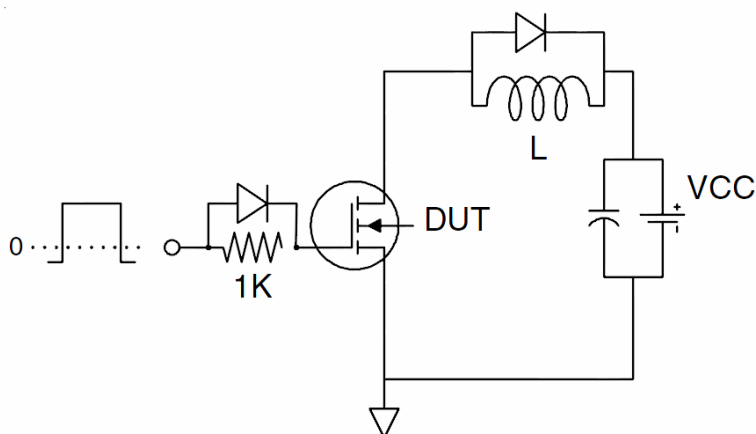
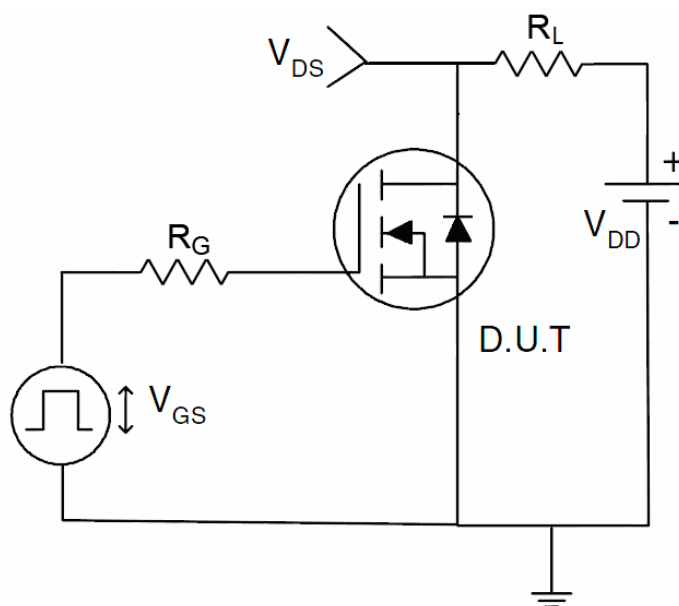
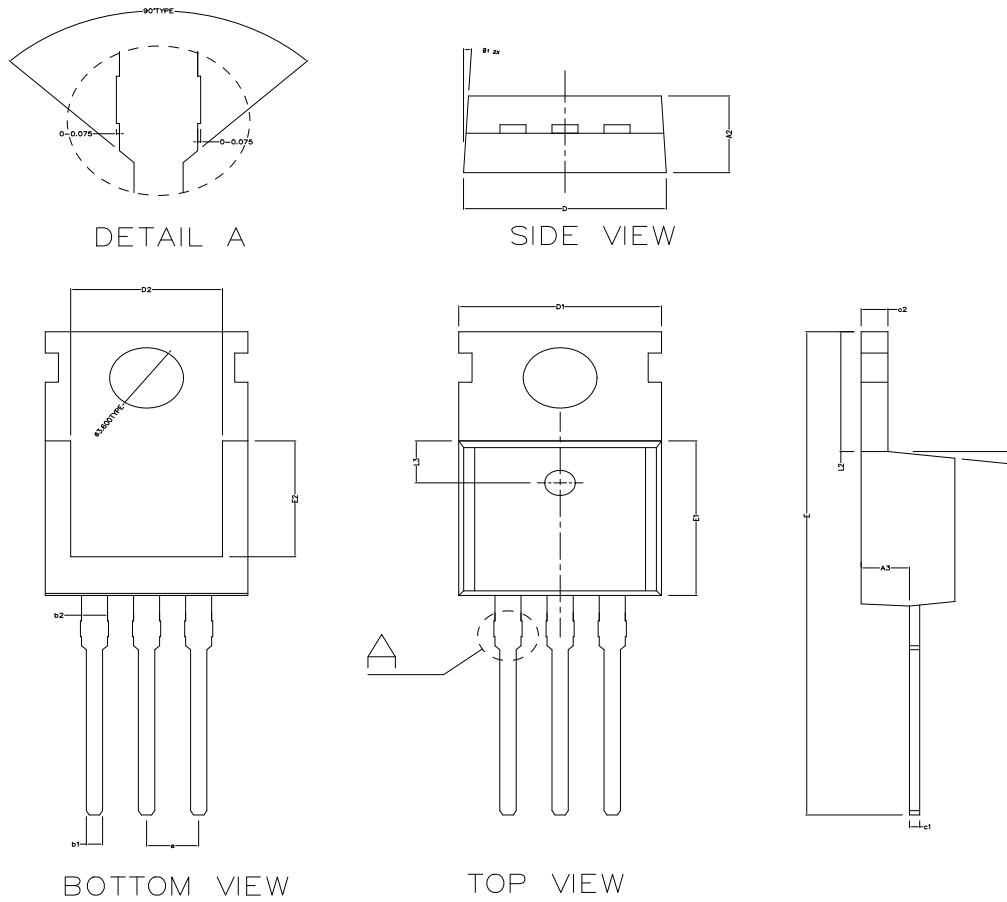


Figure 11. Thermal Resistance Characteristics

Test Circuit
1) E_{AS} test Circuit

2) Gate charge test Circuit

3) Switch Time Test Circuit


TO-220 Package Outline Dimensions (Units: mm)


COMMON DIMENSIONS (UNITS OF MEASURE IS mm)			
	MIN	NORMAL	MAX
A2	4.470	4.570	4.670
A3	2.300	2.350	2.400
b1	0.750	0.800	0.850
b2	1.27 TYPE		
c1	0.450	0.500	0.550
c2	1.250	1.300	1.380
D	9.900	10.000	10.100
D1	10.000TYPE		
D2	8.000TYPE		
E	28.660	28.860	29.060
E1	9.000	9.100	9.200
E2	7.000TYPE		
e	2.540TYPE		
L2	6.350	6.500	6.650
L3	2.50TYPE		
θ_1	3° TYPE		
θ_2	3° TYPE		
θ_3	7° TYPE		
θ_4	7° TYPE		

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