Features

- CRM(CQ) Super_Junction technology
- Much lower Ron*A performance for On-state efficiency
- Better efficiency due to very low FOM
- Ultra-fast body diode

Applications

- LED/LCD/PDP TV and monitor Lighting
- Solar/Renewable/UPS-Micro Inverter System
- Charger
- Power Supply

Product Summary

$V_{DS,min}$	600V
$R_{DS(on),typ}$	70mΩ
I_D	34A

100% DVDS Tested

100% Avalanche Tested
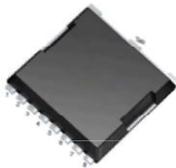
Top view   Bottom view
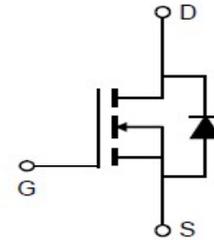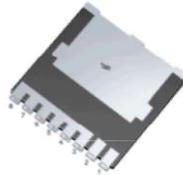
Package Marking and Ordering Information

Part #	Marking	Package	Packing	Reel Size	Tape Width	Qty
CRJZ74N60G2BF	JZ74N60G2BF	TOLL	Tape&Reel	N/A	N/A	2000pcs

Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Drain-source voltage	V_{DS}	600	V
Continuous drain current [1] $T_C = 25°C$ $T_C = 100°C$	I_D	34 21	A
Pulsed drain current [2] ($T_C = 25°C$, t_p limited by $T_{j,max}$)	$I_{D,pulse}$	101	A
Avalanche energy, single pulse (L=30mH)	E_{AS}	520	mJ
MOSFET dv/dt ruggedness	dv/dt	50	V/ns
Gate-Source voltage	V_{GS}	±30	V
Power dissipation ($T_C = 25°C$)	P_{tot}	237	W
Continuous diode forward current($T_C = 25°C$)	I_S	34	A
Diode pulse current [2] ($T_C = 25°C$)	$I_{S,pulse}$	101	A
Recovery diode dv/dt [3]	dv/dt	50	V/ns
Operating junction and storage temperature	T_j , T_{stg}	-55...+150	°C

1) Limited by $T_{j,max}$. Maximum Duty Cycle D = 0.50
2) Pulse width t_p limited by $T_{j,max}$
3) Identical low side and high side switch with identical R_g

Thermal Resistance

Parameter	Symbol	Value			Unit	Test Condition
		min.	typ.	max.		
Thermal resistance, junction – case	R_{thJC}	-	0.38	0.53	°C/W	
Thermal resistance, junction – ambient	R_{thJA}	-	-	53	°C/W	

Electrical Characteristic (at T_j = 25 °C, unless otherwise specified)

Parameter	Symbol	Value			Unit	Test Condition
		min.	typ.	max.		

Static Characteristic

Parameter	Symbol	Value			Unit	Test Condition
		min.	typ.	max.		
Drain-source breakdown voltage	BV_{DSS}	600	-	-	V	V_{GS}=0V, I_D=250µA
Gate threshold voltage	$V_{GS(th)}$	3.2	-	4.6	V	V_{DS}=V_{GS},I_D=250µA
Zero gate voltage drain current	I_{DSS}	-	-	5	µA	V_{DS}=600V,V_{GS}=0V T_j=25°C
		-	500	-		T_j=150°C
Gate-source leakage current	I_{GSS}	-	-	±100	nA	V_{GS}=±30V,V_{DS}=0V
Drain-source on-state resistance	$R_{DS(on)}$	-	70	77	mΩ	V_{GS}=10V, I_D=23A, T_j=25°C
		-	180	-		T_j=150°C
Transconductance	g_{fs}	-	30	-	S	V_{DS}=20V,I_D=23A

Dynamic Characteristic

Parameter	Symbol	Value			Unit	Test Condition
		min.	typ.	max.		
Input Capacitance	C_{iss}	-	2200	-	pF	V_{GS}=0V, V_{DS}=100V, f=1MHz
Output Capacitance	C_{oss}	-	137	-		
Reverse Transfer Capacitance	C_{rss}	-	3.2	-		
Gate Total Charge	Q_g	-	84	-	nC	V_{GS}=10V, V_{DS}=480V, I_D=23A
Gate-Source charge	Q_{gs}	-	19	-		
Gate-Drain charge	Q_{gd}	-	53	-		
Gate plateau voltage	$V_{plateau}$	-	7.5	-	V	
Turn-on delay time	$t_{d(on)}$	-	63	-	ns	V_{GS}=10V, I_D=23A, V_{DS}=400V, R_g=27Ω
Rise time	t_r	-	107	-		
Turn-off delay time	$t_{d(off)}$	-	244	-		
Fall time	t_f	-	103	-		
Gate resistance	$R_{g,int}$	-	1.2	-	Ω	f=1MHz

Body Diode Characteristic

Parameter	Symbol	Value			Unit	Test Condition
		min.	typ.	max.		
Body Diode Forward Voltage	V_{SD}	0.7	0.91	1.1	V	$V_{GS}=0V, I_{SD}=23A$
Body Diode Reverse Recovery Time	t_{rr}	-	125	-	ns	$I_{SD}=23A$ $di_F/dt=100A/\mu s$ $V_{DS}=400V$
Body Diode Reverse Recovery Charge	Q_{rr}	-	0.9	-	μC	

Typical Performance Characteristics

Fig 1. Output Characteristics (T_j=25℃)
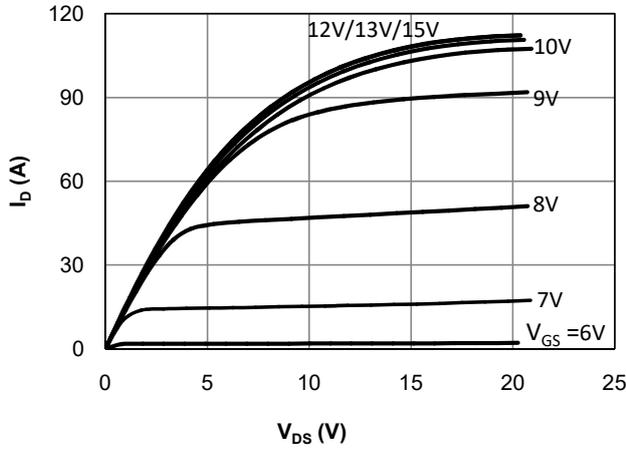
Fig 2. Output Characteristics (T_j=150℃)
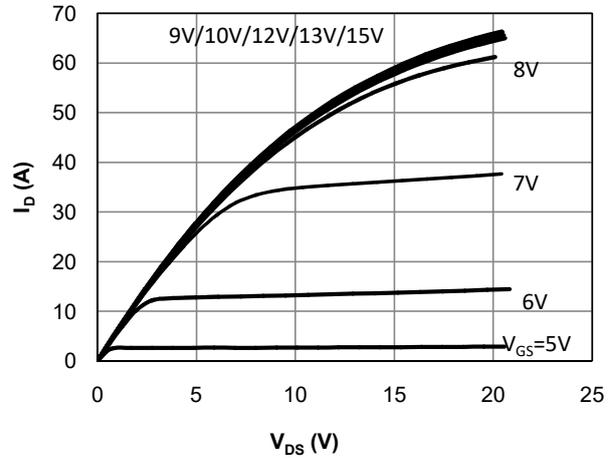
Fig 3: Transfer Characteristics
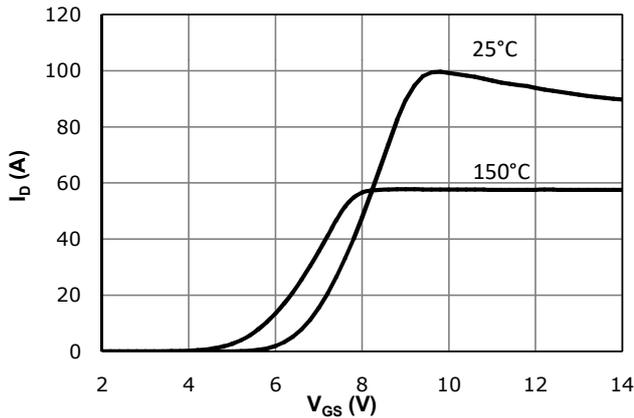
Fig 4: V_TH vs. T_j Temperature Characteristics
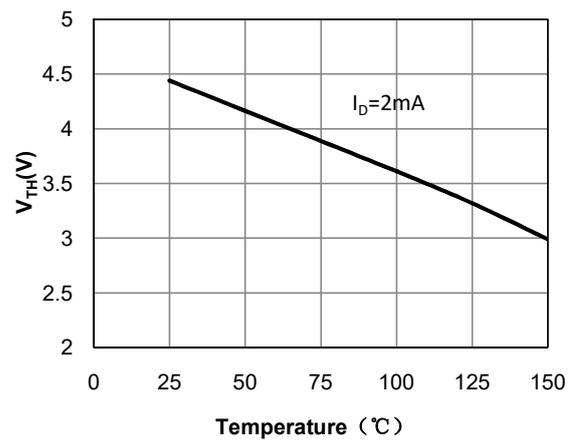
Fig 5: R_DS(on) vs. I_DS Characteristics(T_j=25℃)
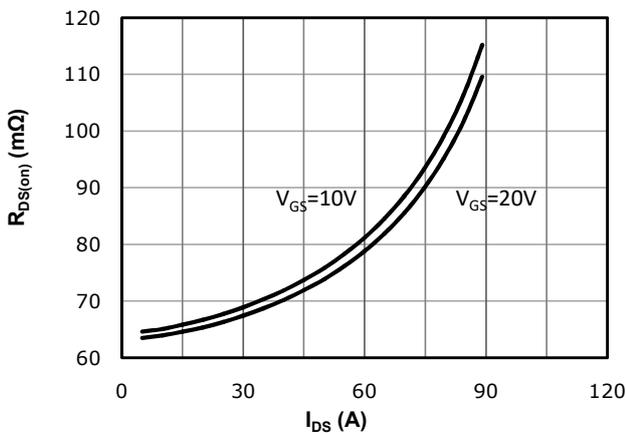
Fig 6: R_DS(on) vs. Temperature
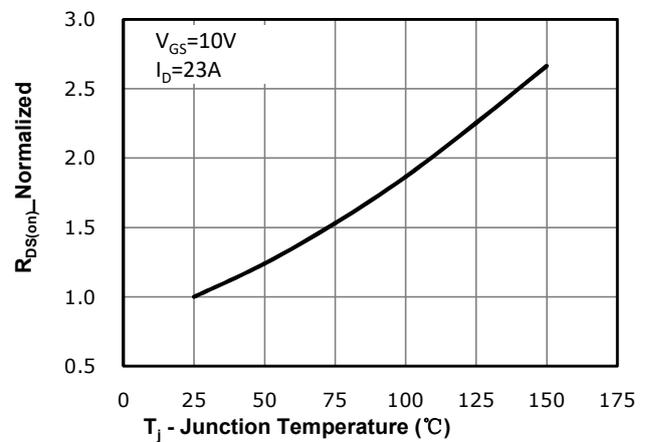
Fig 7: BV$_{DSS}$ vs. Temperature
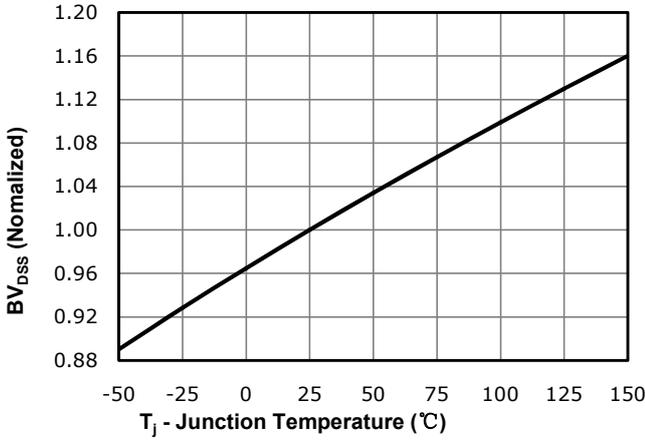
Fig 8: R$_{DS(on)}$ vs. Gate Voltage
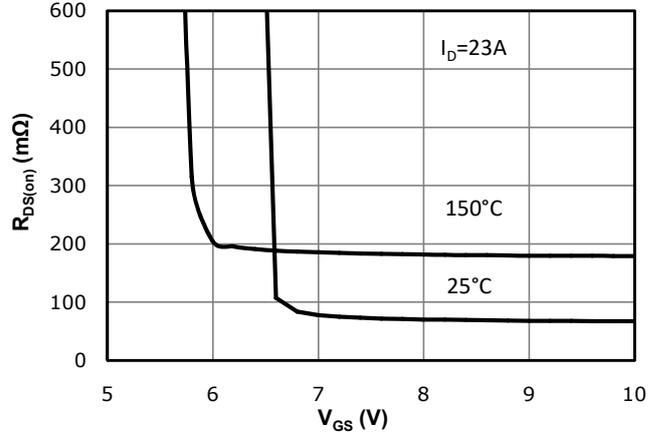
**Fig 9: Body-diode Forward Characteristics**
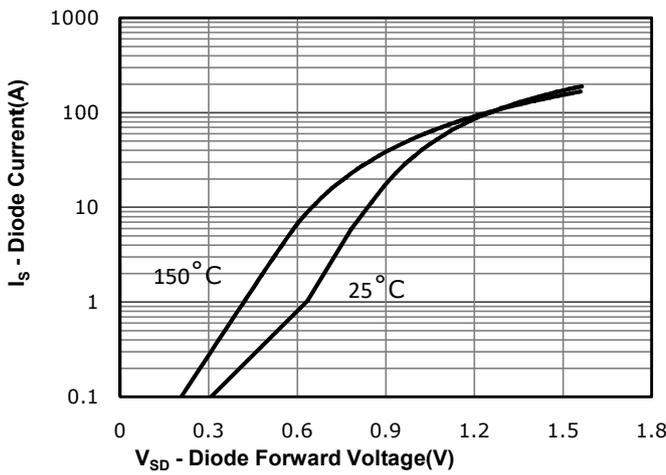
Fig 10: Gate Charge Characteristics
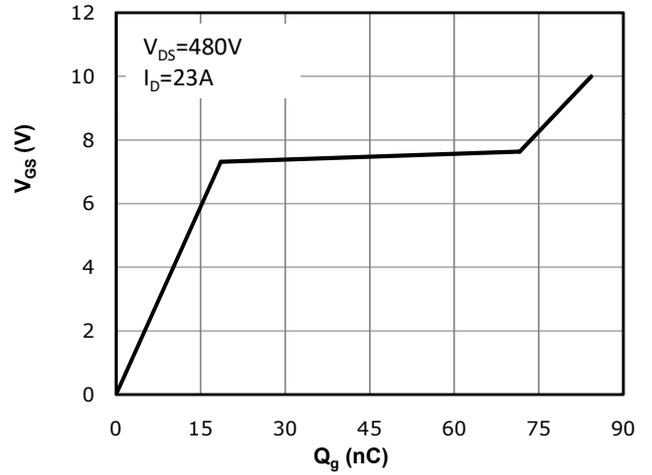
**Fig 11: Capacitance Characteristics**
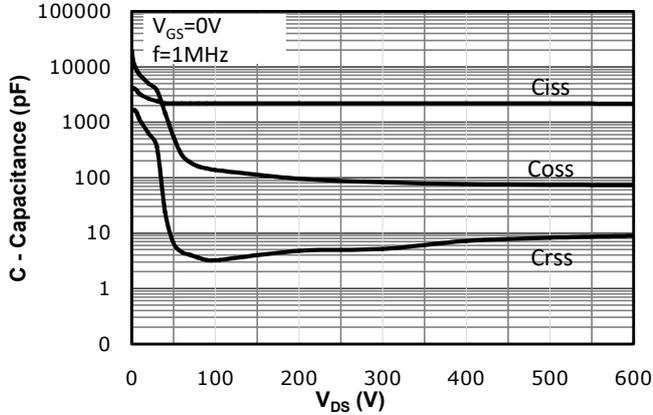
**Fig 12: Safe Operating Area**
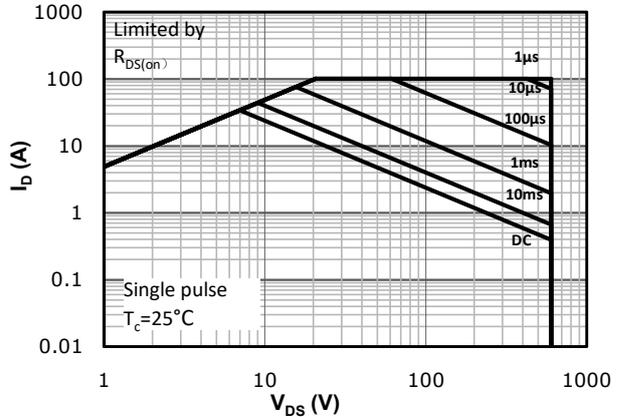
**Fig 13: Max. Transient Thermal Impedance**
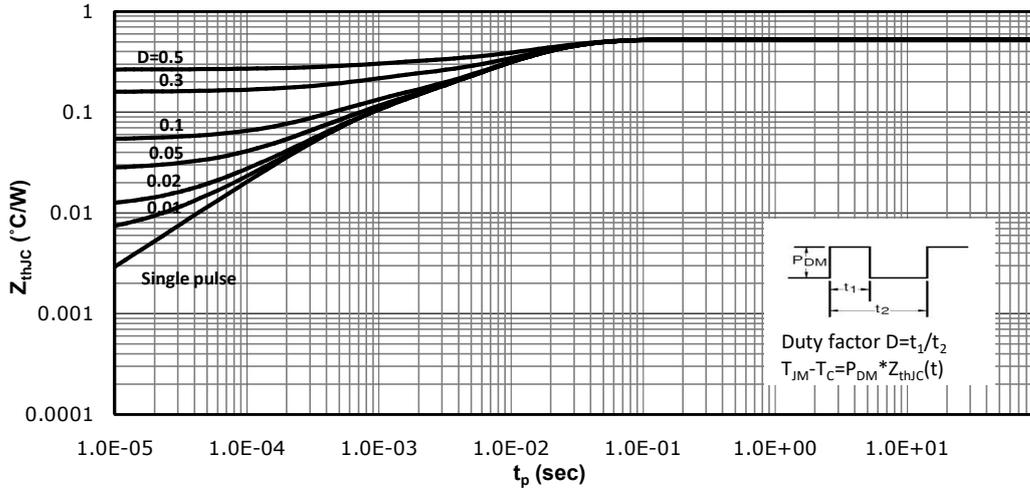
Test Circuit & Waveform

Gate Charge Test Circuit & Waveform
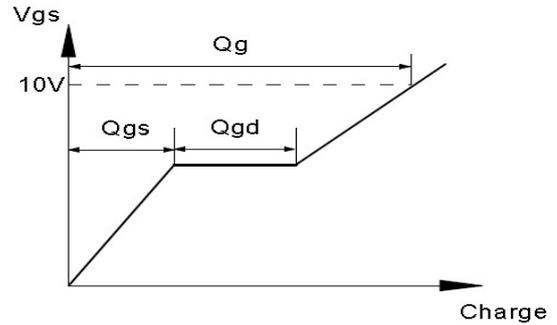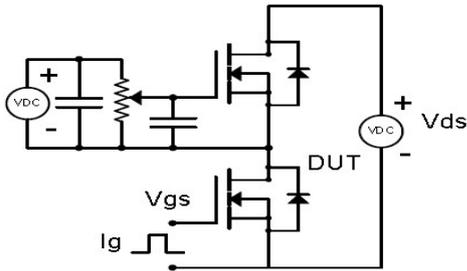
Resistive Switching Test Circuit & Waveforms
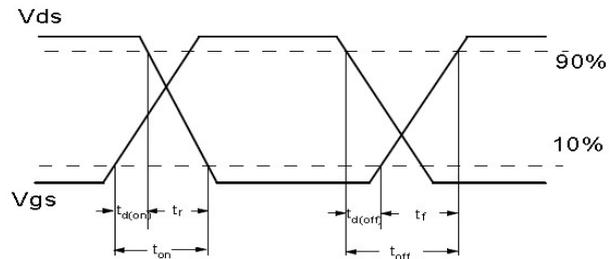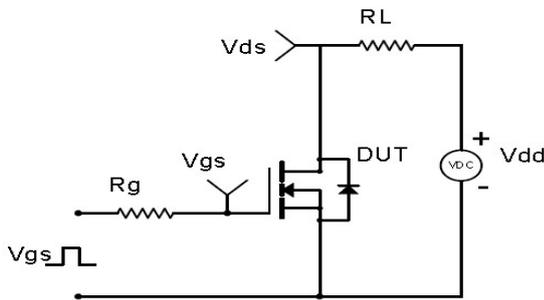
Unclamped Inductive Switching (UIS) Test Circuit & Waveforms

$$E_{AR} = 1/2 \, LI_{AR}^2$$
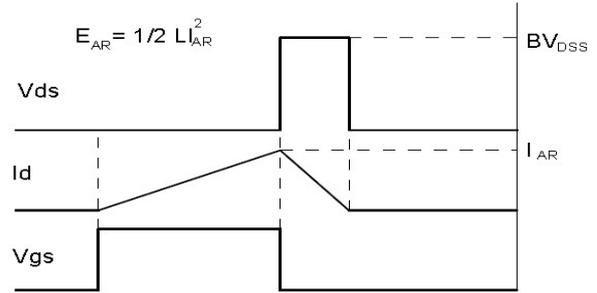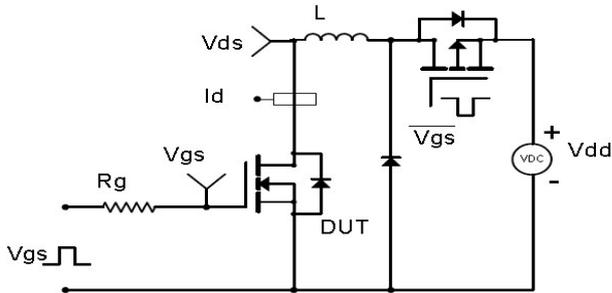
Diode Recovery Test Circuit & Waveforms

$$Q_{rr} = -\int Idt$$
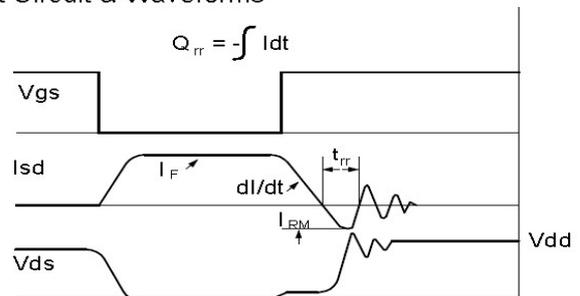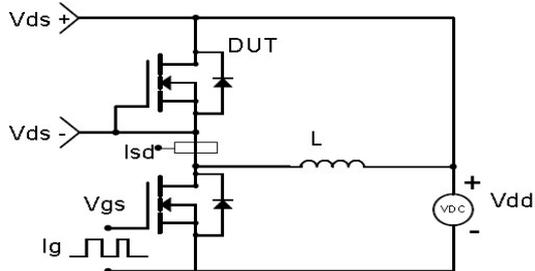
Package Outline: TOLL
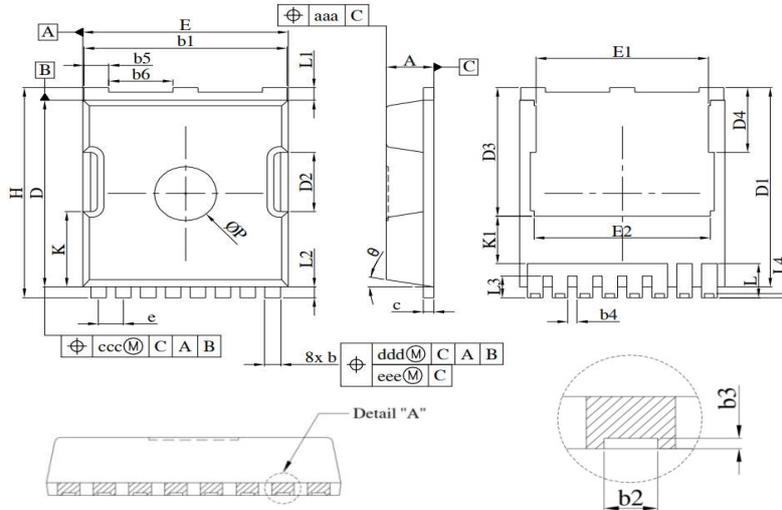
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.20	2.40	0.087	0.094
b	0.70	0.90	0.028	0.035
b1	9.70	9.90	0.382	0.390
b2	0.36	0.55	0.014	0.022
b3	0.05	0.35	0.002	0.014
b4	0.30	0.50	0.012	0.020
b5	1.10	1.30	0.043	0.051
b6	3.00	3.20	0.118	0.126
c	0.40	0.60	0.016	0.024
D	10.28	10.55	0.405	0.415
D1	10.98	11.18	0.432	0.440
D2	3.20	3.40	0.126	0.134
D3	7.00	7.30	0.276	0.287
D4	3.44	3.74	0.135	0.147
e	1.10	1.30	0.043	0.051
E	9.80	10.00	0.386	0.394
E1	8.20	8.40	0.323	0.331
E2	8.35	8.65	0.329	0.341
H	11.50	11.85	0.453	0.467
K	4.08	4.28	0.161	0.169
K1	2.45	---	0.096	---
L	1.60	2.10	0.063	0.083
L1	0.50	0.90	0.020	0.035
L2	0.50	0.70	0.020	0.028
L3	1.00	1.30	0.039	0.051
L4	0.13	0.33	0.005	0.013
P	2.85	3.15	0.112	0.124
θ	10°REF			
aaa	0.20		0.008	
ccc	0.20		0.008	
ddd	0.25		0.010	
eee	0.20		0.008	

CR MICRO

JZ74N60G2BF

NXBBAAAA

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NOTE:
NXBBAAAA
N          —WB code (Usually omitted)
X          —Assembly location code
BB         —Fab code
AAAA       —Lot code
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Revision History

Revison	Date	Major changes
1.0	2023/12/25	First version

Disclaimer

Unless otherwise specified in the datasheet, the product is designed and qulified as a standard commercial product and is not intended for use in applications that require extraordinary levels of quality and reliability, such as automotive, aviation/aerospace and life-support devices or systems.

Any and all semicondutor products have certain probability to fail or malfunction, which may result in personal injury, death or property damage. Customer are solely responsible for providing adequate safe measures when design their systems.

CRM(CQ) reserves the right to improve product design, function and reliability without notice.