Product Summary

	Value	Unit
	100	V
	3.0	V
	369	A
	2.0	m

	Package	# of Pins	Marking	MSL	T_J (°C)	Media	Quantity (pcs)
	PowerJE®10x12	8	SH1002N	1	-55 to 175	13-inch Reel	2000

		Symbol		Unit
		V_{DS}		V
		V_{GS}		V
Continuous Drain Current [1]	T_C = 25°C	I_D	369	
	T_C = 100°C		261	
Pulsed Drain Current [2]		I_{DM}	1476	A
Avalanche Energy [3]		E_{AS}	1350	mJ
	T_C = 100°C		300	W
Junction & .34 528TJ	ET EMC Q q 73.2 29	T_J, T_{STG}		°C

Electrical Characteristics (@ T_J = 25°C unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
STATIC PARAMETERS						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D = 250 A, V_{GS} = 0V	100			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 80V, V_{GS} = 0V			1.0	A
		T_J = 55°C			5.0	
Gate-Body Leakage Current	I_{GSS}	V_{DS} = 0V, V_{GS} = ±20V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250 A	2.0	3.0	4.0	V
Static Drain-Source ON-Resistance	$R_{DS(ON)}$	V_{GS} = 10V, I_D = 20A		2.0	2.4	m
Forward Transconductance	g_{FS}	V_{DS} = 5V, I_D = 20A		67		S
Diode Forward Voltage	V_{SD}	I_S = 1A, V_{GS} = 0V		0.66	1.0	V
Diode Continuous Current	I_S	T_C = 25°C			369	A
DYNAMIC PARAMETERS (5)						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 50V, f = 1MHz		9256		pF
Output Capacitance	C_{oss}			1318		pF
Reverse Transfer Capacitance	C_{rss}			30		pF
Gate Resistance	R_g	V_{GS} = 0V, V_{DS}= 0V, f = 1MHz		1.0		
SWITCHING PARAMETERS (5)						
Total Gate Charge (@ V_{GS} = 10V)	Q_g	V_{GS} = 0 to 10V V_{DS} = 50V, I_D = 20A		131		nC
Total Gate Charge (@ V_{GS} = 6.0V)	Q_g			83		nC
Gate Source Charge	Q_{gs}			46		nC
Gate Drain Charge	Q_{gd}			27		nC
Turn-On DelayTime	$t_{D(on)}$	V_{GS} = 10V, V_{DS} = 50V R_L = 2.5 , R_{GEN} = 3		33		ns
Turn-On Rise Time	t_r			33		ns
Turn-Off DelayTime	$t_{D(off)}$			63		ns
Turn-Off Fall Time	t_f			23		ns
Body Diode Reverse Recovery Time	t_{rr}	I_F = 20A, dI_F/dt = 100A/ s		91		ns
Body Diode Reverse Recovery Charge	Q_{rr}	I_F = 20A, dI_F/dt = 100A/ s		250		nC

Thermal Performance

Parameter	Symbol	Typ.	Max.	Unit
Thermal Resistance, Junction-to-Ambient	R_{JA}	45	55	°C/W
Thermal Resistance, Junction-to-Case	R_{JC}	0.25	0.28	°C/W

Notes:

1. Computed continuous current assumes the condition of T_{J_Max} while the actual continuous current depends on the thermal & electro-mechanical application board design.
2. This single-pulse measurement was taken under T_{J_Max} = 175°C.
3. E_{AS} of 1350 mJ is based on starting T_J = 25°C, L = 3.0mH, I_{AS} = 30A, V_{GS} = 10V, V_{DD} = 50V; 100% test at L = 0.3mH, I_{AS} = 62A.
4. The power dissipation P_D is based on T_{J_Max} = 175°C.
5. This value is guaranteed by design hence it is not included in the production test.

Jiangsu JieJie Microelectronics Co., Ltd.
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Typical Electrical & Thermal Characteristics

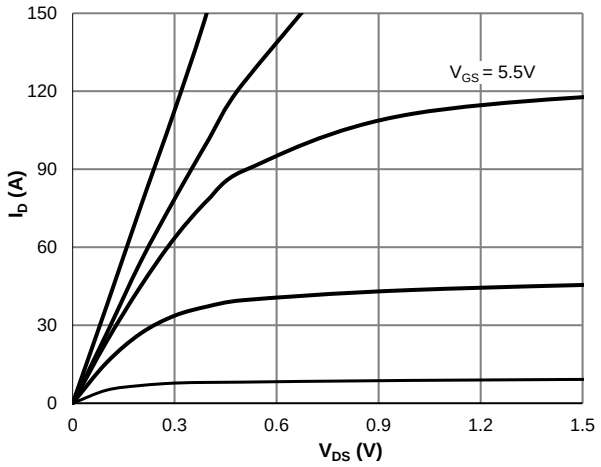

Figure 1: Saturation Characteristics

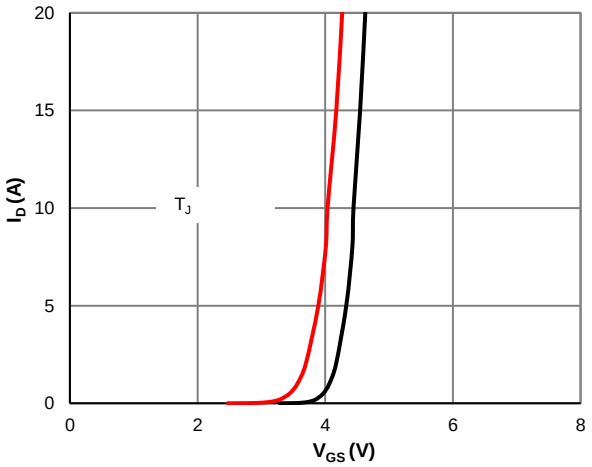

Figure 2: Transfer Characteristics

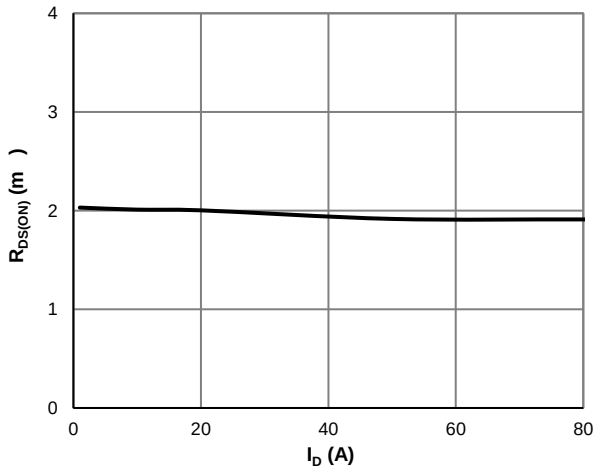

Figure 3: $R_{DS(ON)}$ vs. Drain Current

Typical Electrical & Thermal Characteristics

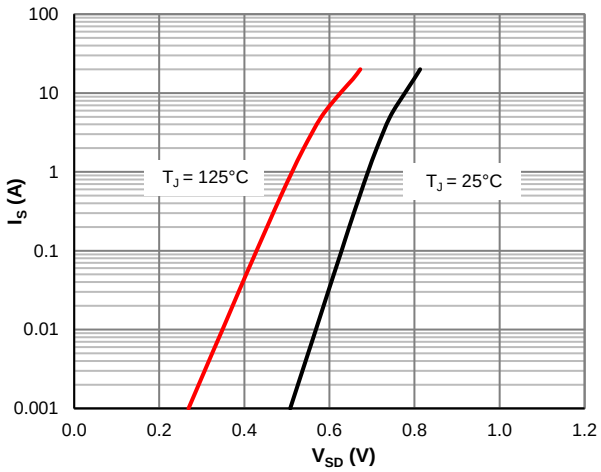

Figure 7: Body-Diode Characteristics

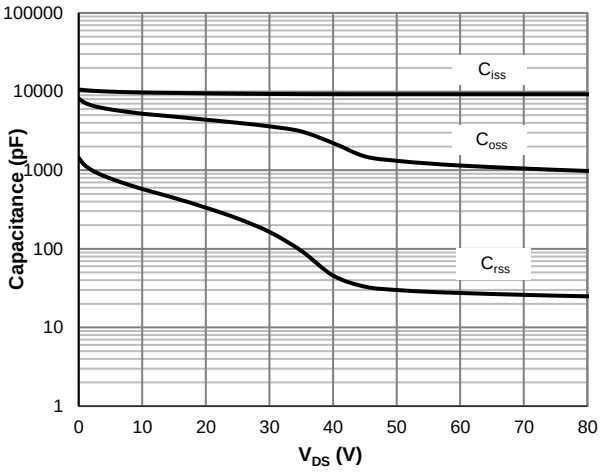

Figure 8: Capacitance Characteristics

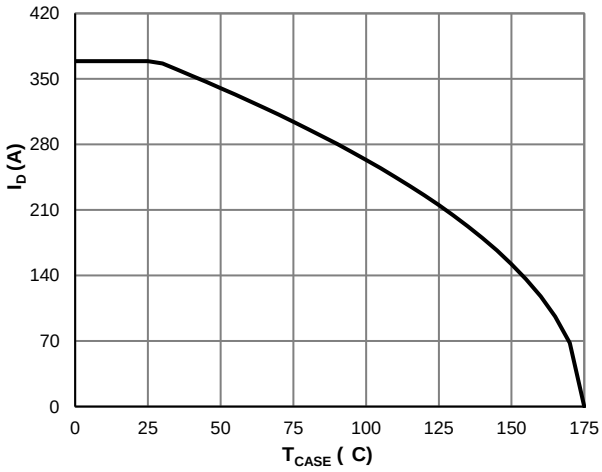

Figure 9: Current De-rating

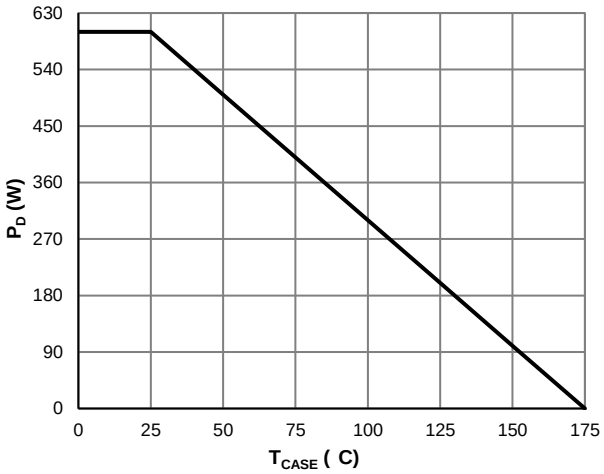

Figure 10: Power De-rating

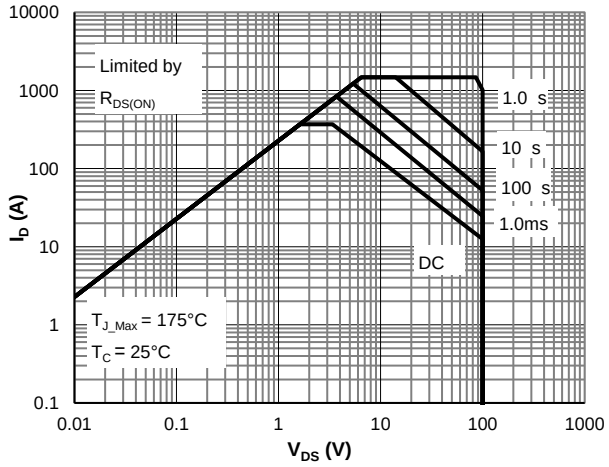

Figure 11: Maximum Safe Operating Area

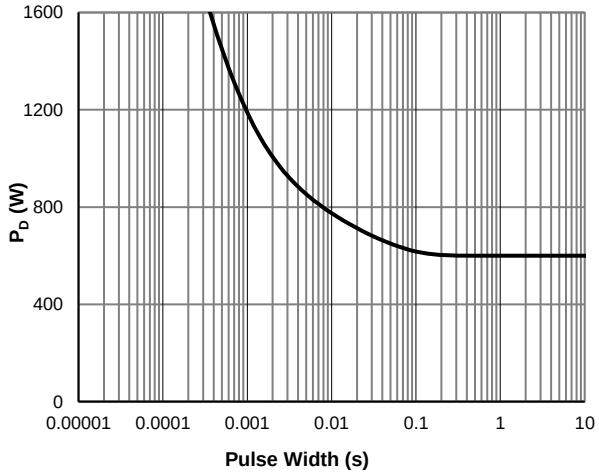

Figure 12: Single Pulse Power Rating, Junction-to-Case

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Typical Electrical & Thermal Characteristics

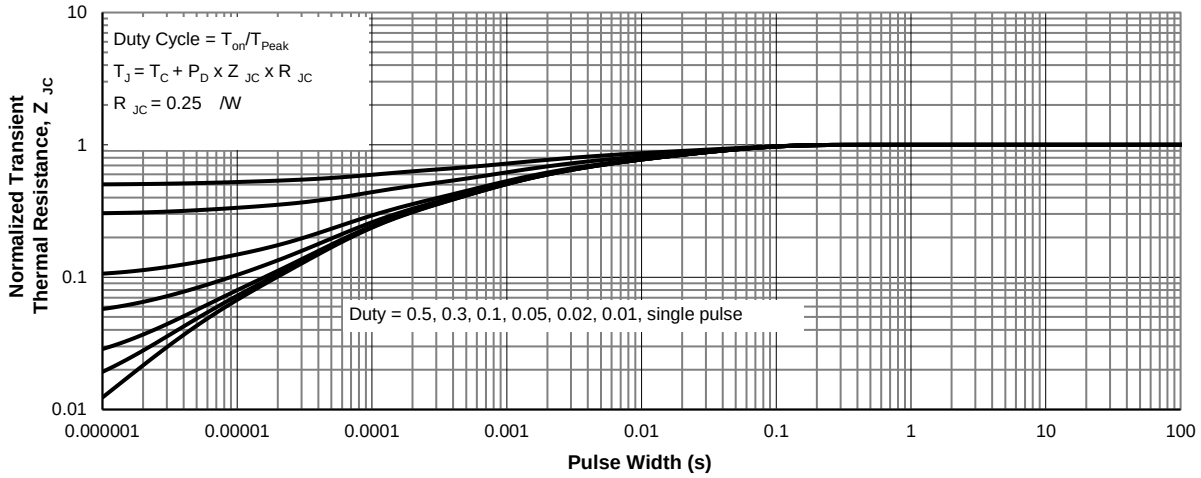

Figure 13: Normalized Maximum Transient Thermal Impedance

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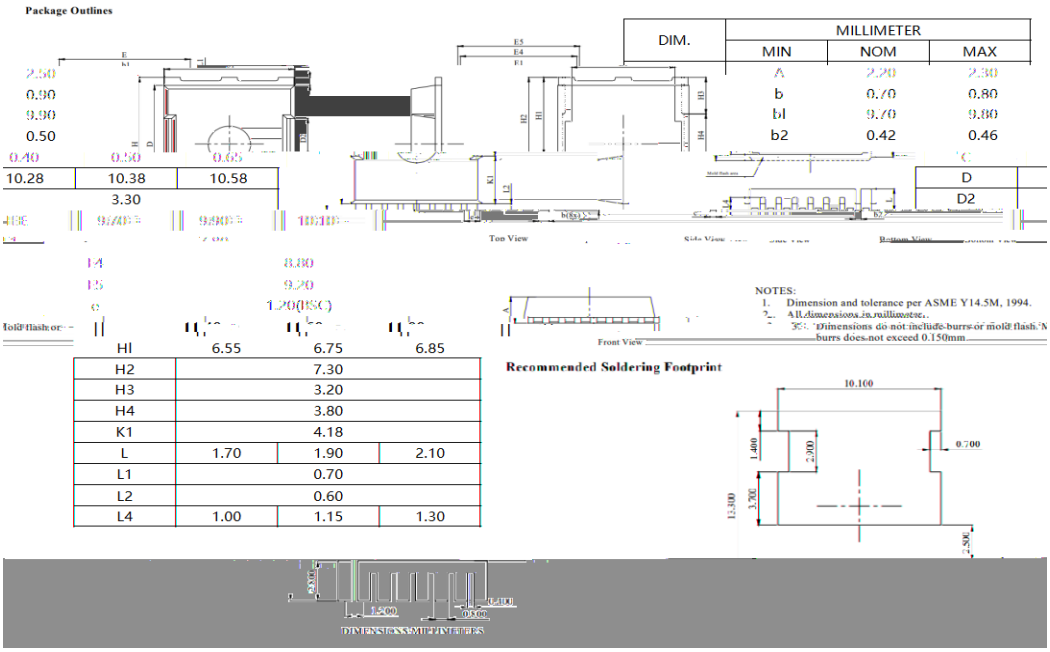
PowerJE®10x12 Package Information



H1	6.55	6.75	6.85
H2	7.30		
H3	3.20		
H4	3.80		
K1	4.18		
L	1.70	1.90	2.10
L1	0.70		
L2	0.60		
L4	1.00	1.15	1.30

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