

JMSH0802MTL

Features

- Excellent $R_{DS(ON)}$ and Low Gate Charge
- 100% UIS Tested
- 100% ΔV_{ds} Tested
- Halogen-free; RoHS-compliant

Applications

- Load Switch
- PWM Application
- Power Management

Product Summary

Parameters	Value	Unit
V_{DSS}	80	V
$V_{GS(th)}_{Typ}$	2.9	V
$I_D(@V_{GS}=10V)$	285	A
$R_{DS(ON)}_{Typ}(@V_{GS}=10V)$	1.4	m



PowerJE®10x12 Top View

Pin Assignment

Schematic

Ordering Information

Device	Marking	MSL	Form	Package	Reel(pcs)	Per Carton (pcs)
JMSH0802MTL-13	SH0802M	1	Tape&Reel	PowerJE®10x12	2000	10000

Absolute Maximum Ratings (@ $T_C = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Value	Unit
V_{DS}	Drain-to-Source Voltage	80	V
V_{GS}	Gate-to-Source Voltage	± 20	V
I_D	Continuous Drain Current	$T_C = 25^\circ\text{C}$ $T_C = 100^\circ\text{C}$	A
I_{DM}	Pulsed Drain Current ⁽¹⁾	Refer to Fig.4	A
E_{AS}	Single Pulsed Avalanche Energy ⁽²⁾	1423	mJ
P_D	Power Dissipation	$T_C = 25^\circ\text{C}$ $T_C = 100^\circ\text{C}$	W
T_J, T_{STG}	Junction & Storage Temperature Range	-55 to 150	$^\circ\text{C}$

Thermal Characteristics

Symbol	Parameter	Max	Unit
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient ⁽³⁾	34	$^\circ\text{C/W}$
$R_{\theta JC}$	Thermal Resistance, Junction to Case	0.4	

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

Symbol	Conditions	Min.	Typ.	Max.	Unit
Off Characteristics					
V _{(BR)DSS}		80	-	-	V
I _{DSS}		-	-	1.0	A
I _{GSS}		-	-	±100	nA
V _{GS(th)}		2.0	2.9	3.8	V
R _{DS(ON)}		-	1.4	2.0	m
R _g		-	0.4	-	
C _{iss}		6243	8740	11799	pF
C _{oss}		1257	1760	2376	pF
C _{rss}		19	26	35	pF
Q _g		91	128	173	nC
Q _{gs}		29	40	54	nC
Q _{gd}		18	26	34	nC
t _{d(on)}		-	36	-	ns
t _r		-	38	-	ns
t _{d(off)}		-	87	-	ns
t _f					

Typical Performance Characteristics

Figure 1: Power De-rating

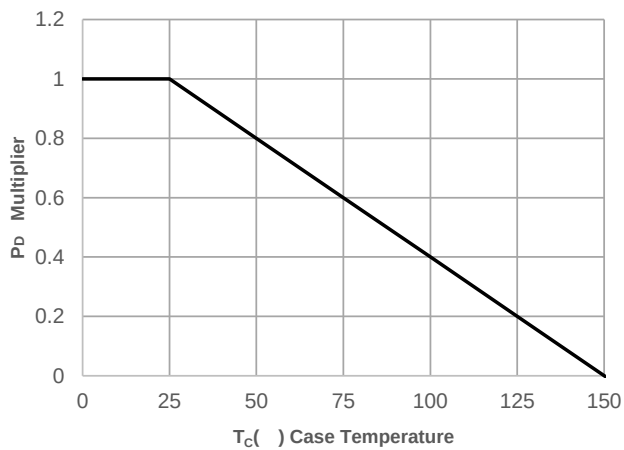


Figure 2: Current De-rating

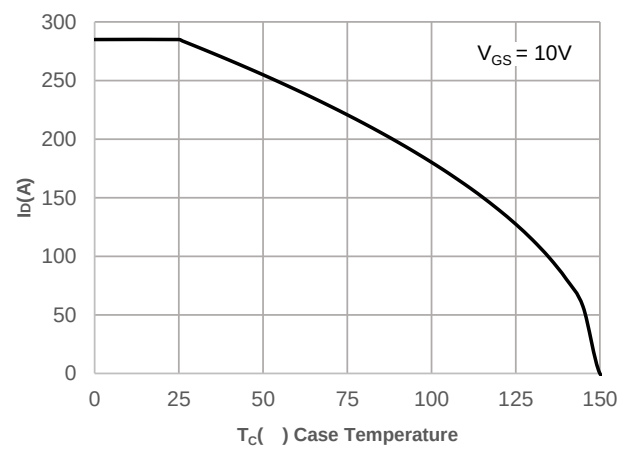
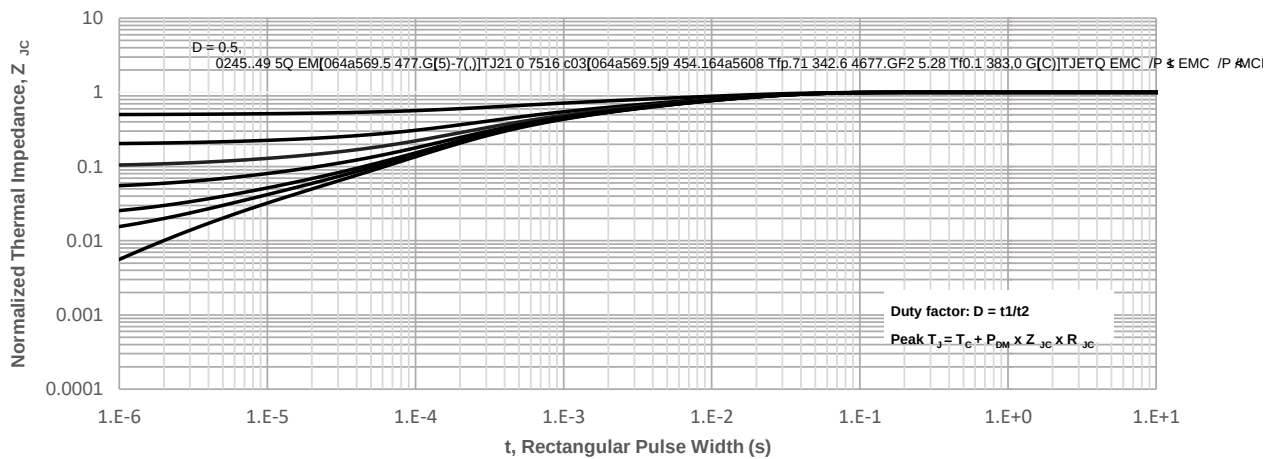


Figure 3: Normalized Maximum Transient Thermal Impedance



Typical Performance Characteristics

Figure 5: Output Characteristics

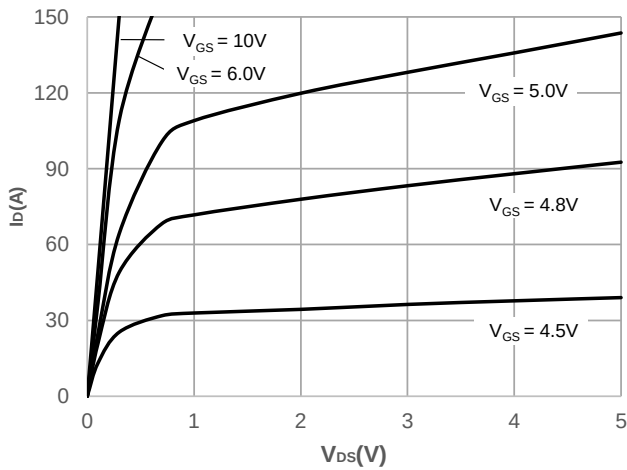


Figure 6: Typical Transfer Characteristics

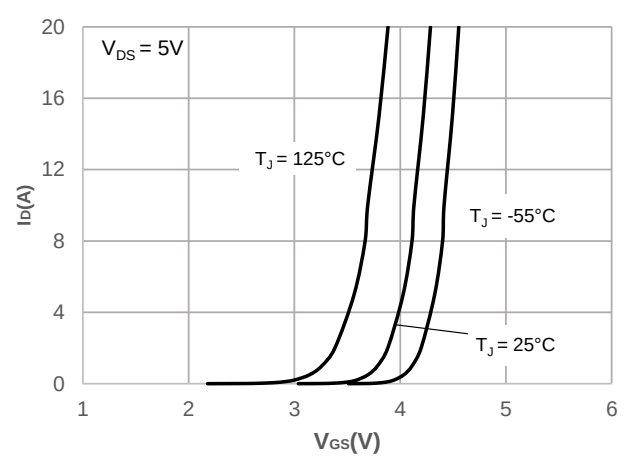


Figure 7: On-resistance vs. Drain Current

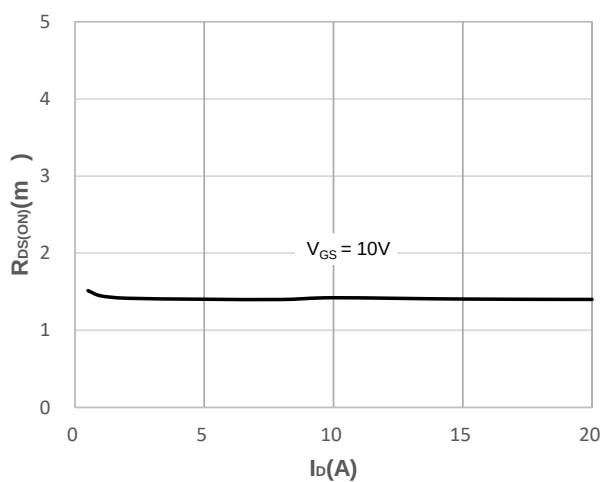


Figure 8: Body Diode Characteristics

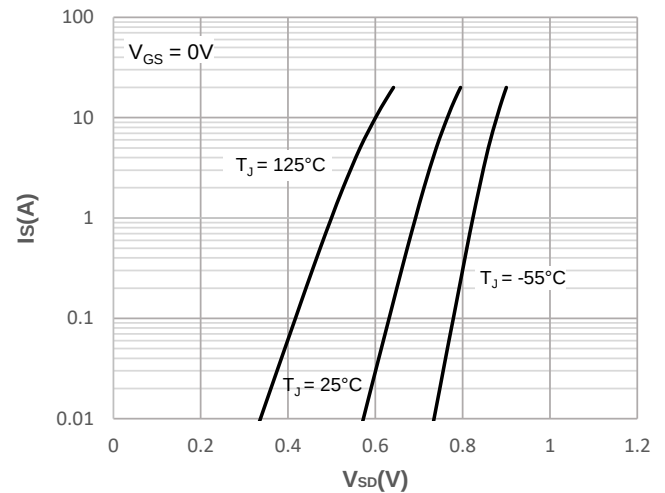


Figure 9: Gate Charge Characteristics

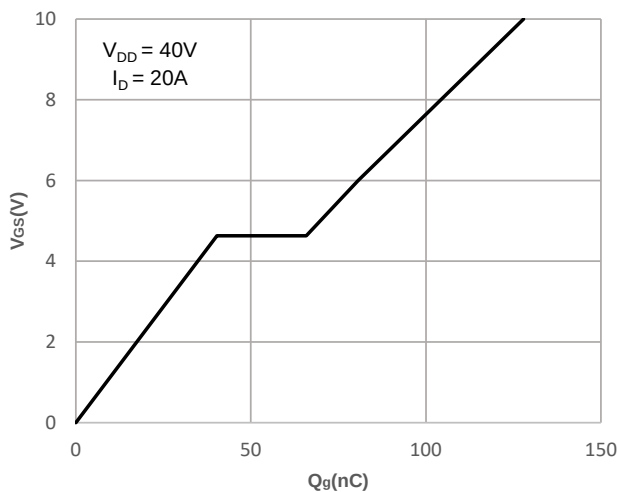
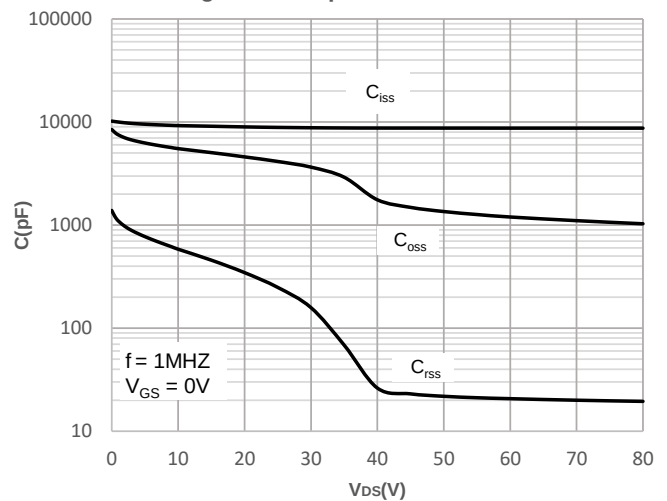


Figure 10: Capacitance Characteristics



Typical Performance Characteristics

Figure 11: Normalized Breakdown voltage vs. Junction Temperature

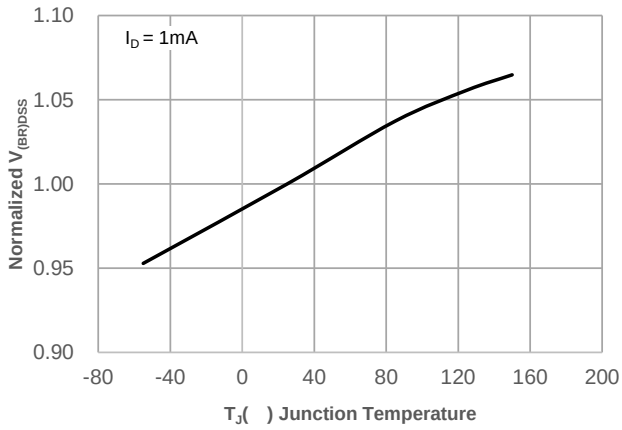


Figure 12: Normalized on Resistance vs. Junction Temperature

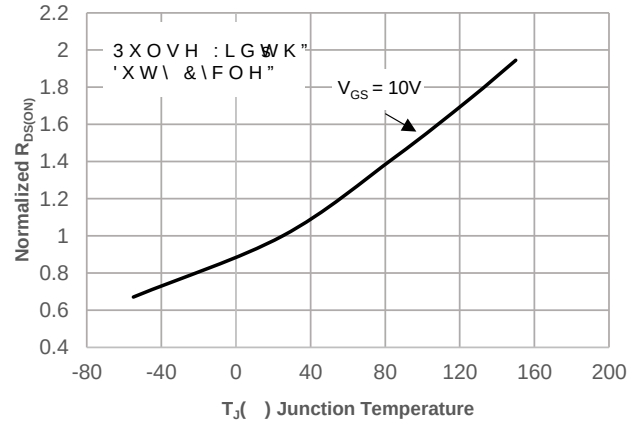


Figure 13: Normalized Threshold Voltage vs. Junction Temperature

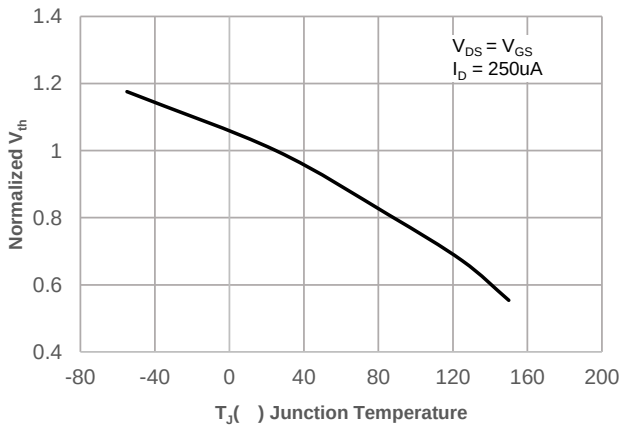


Figure 14: $R_{DS(ON)}$ vs. V_{GS}

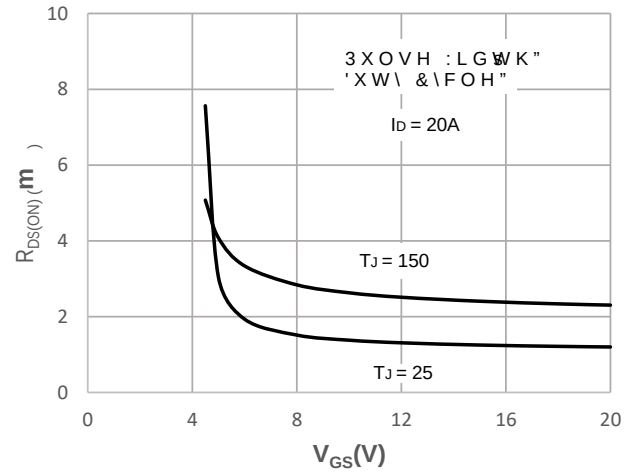
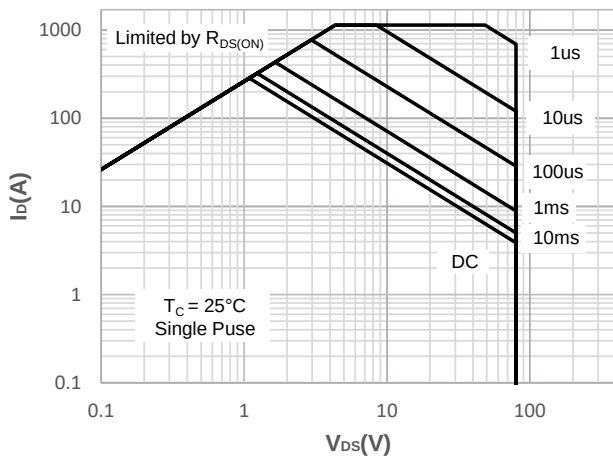


Figure 15: Maximum Safe Operating Area



Test Circuit



Figure 1: Gate Charge Test Circuit & Waveform

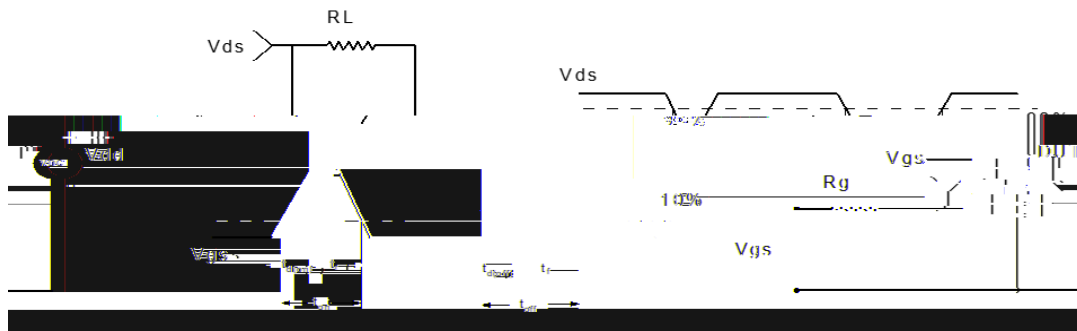


Figure 2: Resistive Switching Test Circuit & Waveform

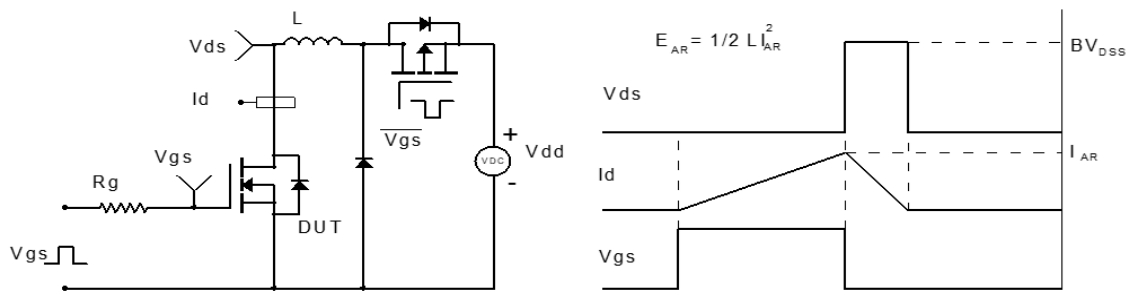


Figure 3: Unclamped Inductive Switching Test Circuit & Waveform

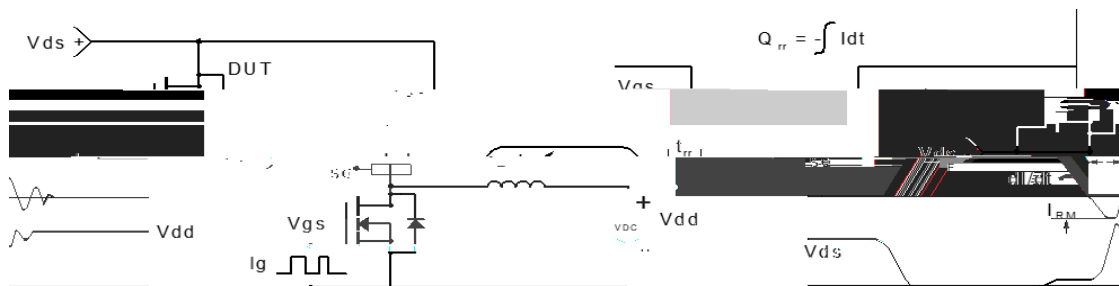
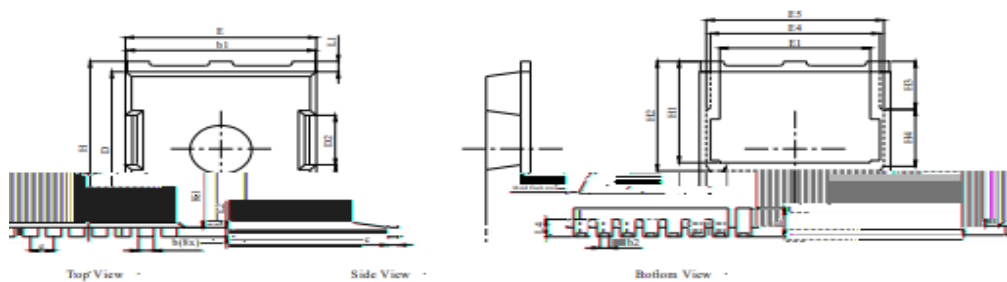


Figure 4: Diode Recovery Test Circuit & Waveform

Package Mechanical Data(PowerJE®10x12)

Package Outlines



NOTES:

1. Dimension and tolerance per ASME Y14.5M, 1994.
2. All dimensions in millimeter.
3. Dimensions are shown to 0.1mm, 0.2mm, 0.5mm, 1.0mm, 2.0mm, 5.0mm, 10.0mm, 20.0mm, 50.0mm, 100.0mm, 200.0mm, 500.0mm, 1000.0mm.

DIM	MIN	NOM	MAX
A	0.20	0.20	0.40
B	0.50	0.50	0.50
C1	0.70	0.80	0.90
C2	0.40	0.40	0.50
C3	0.40	0.50	0.60
C4	0.20	0.30	0.50
D1	0.70	0.80	1.00
D2	0.70	0.80	1.00
D3	0.70	0.80	1.00
D4	0.70	0.80	1.00
D5	0.70	0.80	1.00
D6	0.70	0.80	1.00
D7	0.70	0.80	1.00
D8	0.70	0.80	1.00
D9	0.70	0.80	1.00
D10	0.70	0.80	1.00
D11	0.70	0.80	1.00
D12	0.70	0.80	1.00
D13	0.70	0.80	1.00
D14	0.70	0.80	1.00
D15	0.70	0.80	1.00
D16	0.70	0.80	1.00
D17	0.70	0.80	1.00
D18	0.70	0.80	1.00
D19	0.70	0.80	1.00
D20	0.70	0.80	1.00
D21	0.70	0.80	1.00
D22	0.70	0.80	1.00
D23	0.70	0.80	1.00
D24	0.70	0.80	1.00
D25	0.70	0.80	1.00
D26	0.70	0.80	1.00
D27	0.70	0.80	1.00
D28	0.70	0.80	1.00
D29	0.70	0.80	1.00
D30	0.70	0.80	1.00
D31	0.70	0.80	1.00
D32	0.70	0.80	1.00
D33	0.70	0.80	1.00
D34	0.70	0.80	1.00
D35	0.70	0.80	1.00
D36	0.70	0.80	1.00
D37	0.70	0.80	1.00
D38	0.70	0.80	1.00
D39	0.70	0.80	1.00
D40	0.70	0.80	1.00
D41	0.70	0.80	1.00
D42	0.70	0.80	1.00
D43	0.70	0.80	1.00
D44	0.70	0.80	1.00
D45	0.70	0.80	1.00
D46	0.70	0.80	1.00
D47	0.70	0.80	1.00
D48	0.70	0.80	1.00
D49	0.70	0.80	1.00
D50	0.70	0.80	1.00
D51	0.70	0.80	1.00
D52	0.70	0.80	1.00
D53	0.70	0.80	1.00
D54	0.70	0.80	1.00
D55	0.70	0.80	1.00
D56	0.70	0.80	1.00
D57	0.70	0.80	1.00
D58	0.70	0.80	1.00
D59	0.70	0.80	1.00
D60	0.70	0.80	1.00
D61	0.70	0.80	1.00
D62	0.70	0.80	1.00
D63	0.70	0.80	1.00
D64	0.70	0.80	1.00
D65	0.70	0.80	1.00
D66	0.70	0.80	1.00
D67	0.70	0.80	1.00
D68	0.70	0.80	1.00
D69	0.70	0.80	1.00
D70	0.70	0.80	1.00
D71	0.70	0.80	1.00
D72	0.70	0.80	1.00
D73	0.70	0.80	1.00
D74	0.70	0.80	1.00
D75	0.70	0.80	1.00
D76	0.70	0.80	1.00
D77	0.70	0.80	1.00
D78	0.70	0.80	1.00
D79	0.70	0.80	1.00
D80	0.70	0.80	1.00
D81	0.70	0.80	1.00
D82	0.70	0.80	1.00
D83	0.70	0.80	1.00
D84	0.70	0.80	1.00
D85	0.70	0.80	1.00
D86	0.70	0.80	1.00
D87	0.70	0.80	1.00
D88	0.70	0.80	1.00
D89	0.70	0.80	1.00
D90	0.70	0.80	1.00
D91	0.70	0.80	1.00
D92	0.70	0.80	1.00
D93	0.70	0.80	1.00
D94	0.70	0.80	1.00
D95	0.70	0.80	1.00
D96	0.70	0.80	1.00
D97	0.70	0.80	1.00
D98	0.70	0.80	1.00
D99	0.70	0.80	1.00
D100	0.70	0.80	1.00

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