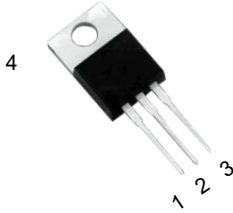


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N Channel Power MOSFET

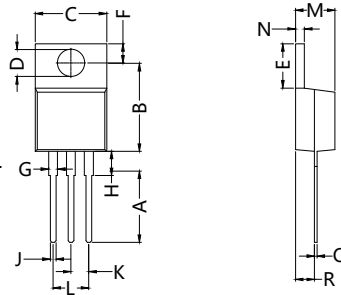
SMOS100N10A2

TO-220AB



- 1, Gate
- 2, Drain
- 3, Source
- 4, Drain Fin

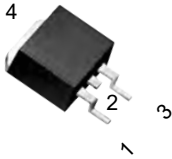
Dimensions TO-220AB



Dim.	Millimeter	
	Min.	Max.
A	12.70	13.97
B	14.73	16.00
C	9.91	10.66
ØD	3.54	4.08
E	5.85	6.85
F	2.54	3.18
G	1.15	1.65
H	2.79	5.84
J	0.64	1.01
K	2.45BSC	
L	5.05BSC	
M	4.32	4.82
N	1.14	1.39
Q	0.35	0.56
R	2.29	2.79

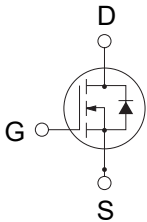
SMOS100N10A6

TO-263(D²PAK)

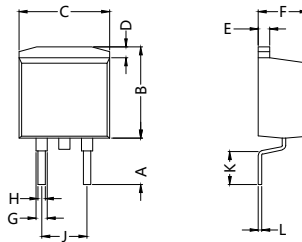


- 1, Gate
- 2, Drain
- 3, Source
- 4, Drain Fin

Dimensions TO-263 (D²PAK)



G=Gate, D=Drain, S=Source



Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	5.00	5.60	0.197	0.220
B	9.32	10.52	0.367	0.414
C	9.60	10.40	0.378	0.409
D	1.10	1.40	0.043	0.055
E	1.20	1.50	0.047	0.059
F	4.32	4.82	0.170	0.190
G	1.15	1.65	0.045	0.065
H	0.64	1.00	0.025	0.039
J	4.80	5.20	0.189	0.205
K	2.80	3.90	0.110	0.154
L	0.30	0.45	0.012	0.018

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

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V _{DS}	100	V
Gate-Source Voltage	V _{GS}	±20	V
Drain Current-Continuous(T _C =25°C)	I _{D25}	100	A
Drain Current-Continuous(T _C =100°C)	I _{D100}	90	A
Pulsed Drain Current	I _{DM}	400	A
Maximum Power Dissipation	P _D	140	W
		128	W
Single pulse avalanche energy ^(Note 5)	E _{AS}	190	mJ
Operating Junction and Storage Temperature Range	T _J , T _{STG}	-55 To 150	°C

Thermal Characteristic

Thermal Resistance,Junction-to-Case (TO-220AB)	R _{θJC}	0.88	°C/W
Thermal Resistance,Junction-to-Case (TO-263)	R _{θJC}	0.92	°C/W

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Electrical Characteristics

(T_J=25°C, unless otherwise specified)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V I _D =250μA	100	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =100V,V _{GS} =0V	-	-	1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±20V,V _{DS} =0V	-	-	±100	nA
On Characteristics ^(Note 3)						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} ,I _D =250μA	2	3	4	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{DS} =10V, I _D = 20A	-	6.6	8.0	mΩ
Forward Transconductance	g _{FS}	V _{DS} =5V, I _D =50A	-	115.0	-	S
Dynamic Characteristics ^(Note4)						
Input Capacitance	C _{ISS}	V _{DS} =25V,V _{GS} =0V, F=1.0MHz	-	3130	-	PF
Output Capacitance	C _{OSS}		-	525	-	PF
Reverse Transfer Capacitance	C _{rss}		-	10	-	PF
Switching Characteristics ^(Note 4)						
Turn-on Delay Time	t _{d(on)}	V _{DD} =50V, I _D =50A V _{GS} =10V,R _G = 2.7Ω	-	18	-	nS
Turn-on Rise Time	t _r		-	9.9	-	nS
Turn-Off Delay Time	t _{d(off)}		-	63	-	nS
Turn-Off Fall Time	t _f		-	44	-	nS
Total Gate Charge	Q _g	V _{DD} =50V,I _D =50A, V _{GS} =10V , f=1MHz	-	45	-	nC
Gate-Source Charge	Q _{gs}		-	8.2	-	nC
Gate-Drain Charge	Q _{gd}		-	11	-	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage ^(Note 3)	V _{SD}	V _{GS} =0V, I _S =30A	-	0.80	1.3	V
Diode Forward Current ^(Note 2)	I _S		-	-	100	A
Reverse Recovery Time	t _{rr}	T _J = 25°C, I _F =30A di/dt =100A/μs ^(Note3)	-	65	-	nS
Reverse Recovery Charge	Q _{rr}			156	-	uC
Forward Turn-On Time	t _{on}	Intrinsic turn-on time is negligible (turn-on is dominated by LS+LD)				

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec.
3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production
5. EAS condition : T_J=25°C, V_{DD}=30V, V_G=10V, L=0.4mH, R_G=25Ω

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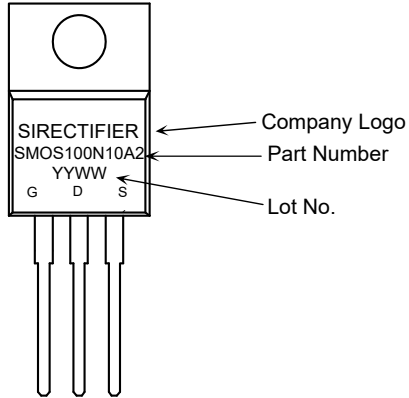
SMOS100N10A2 SMOS100N10A6

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Marking

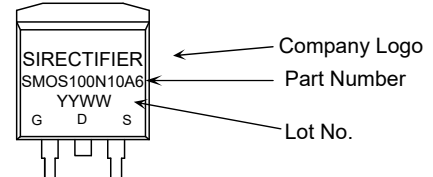
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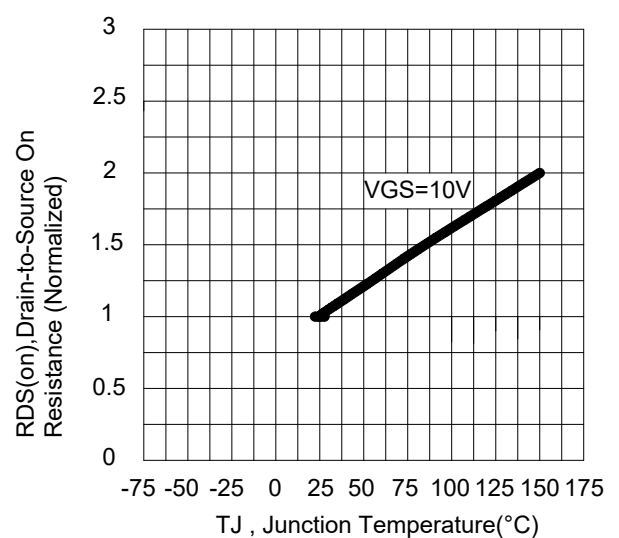
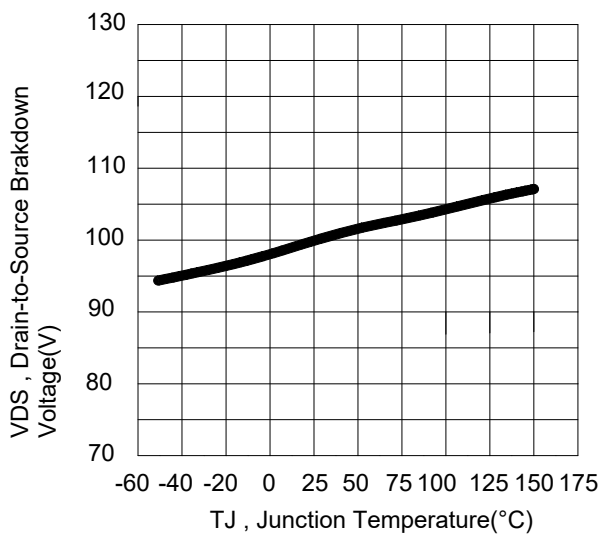
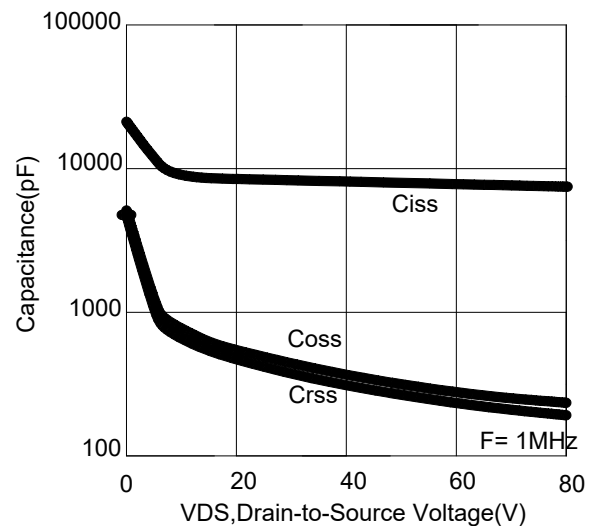
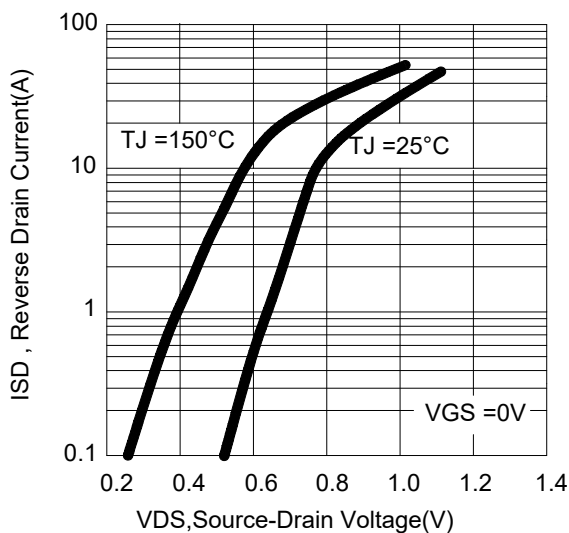
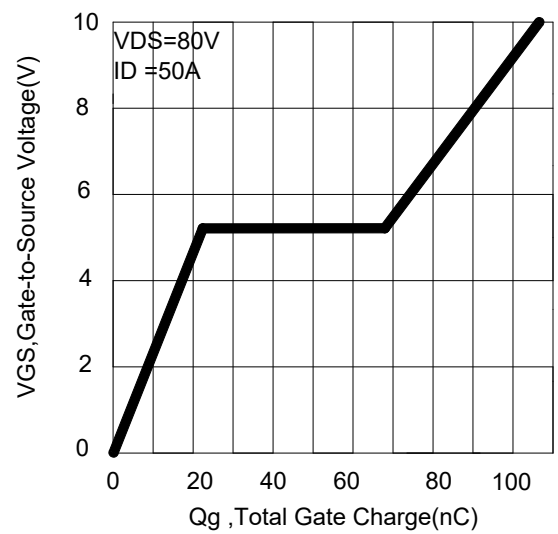
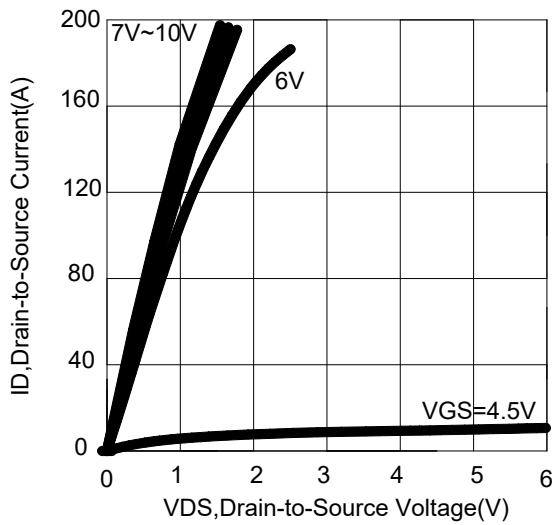


Ordering Information

Part Number	Package	Shipping	Marking Code
SMOS100N10A2	TO-220AB	50pcs / Tube	SMOS100N10A2
SMOS100N10A6	TO-263	50pcs / Tube or 1000pcs / Tape & Reel	SMOS100N10A6

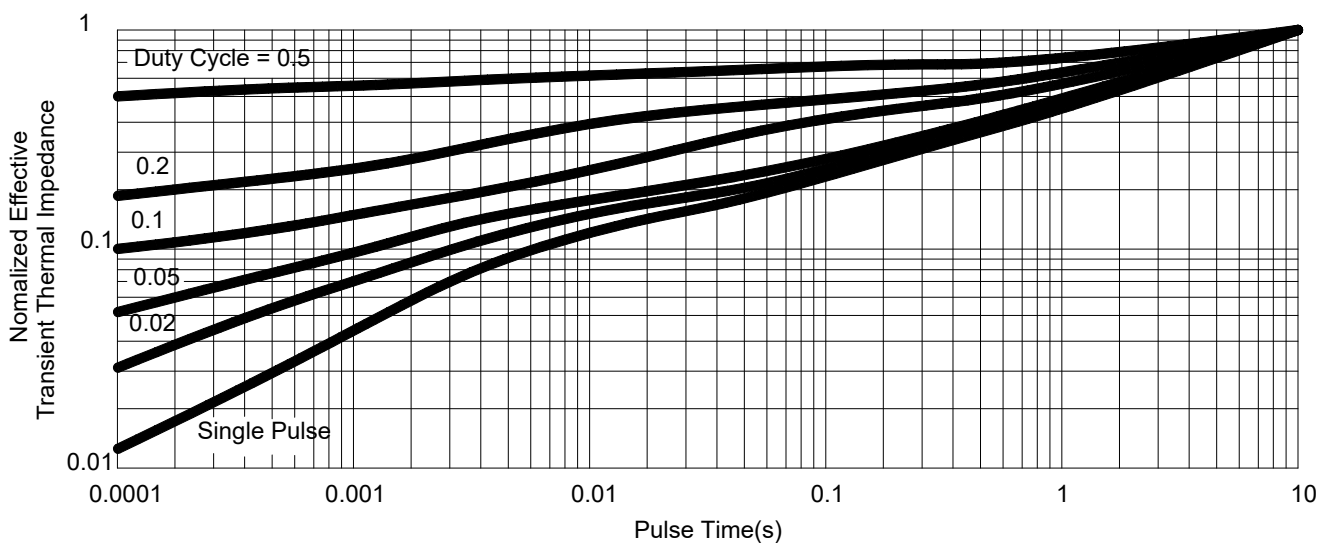
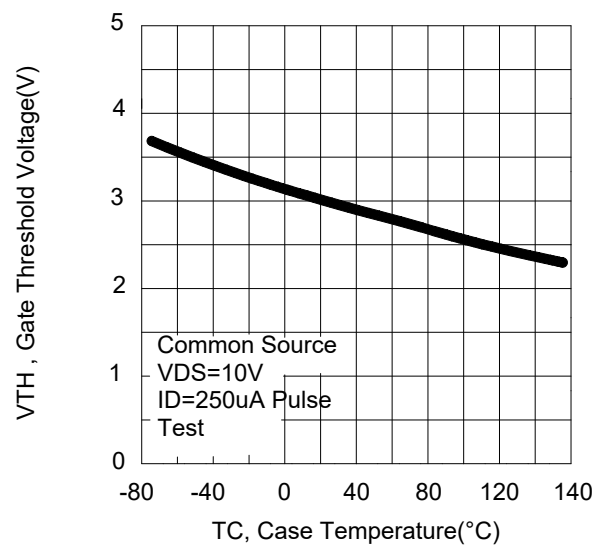
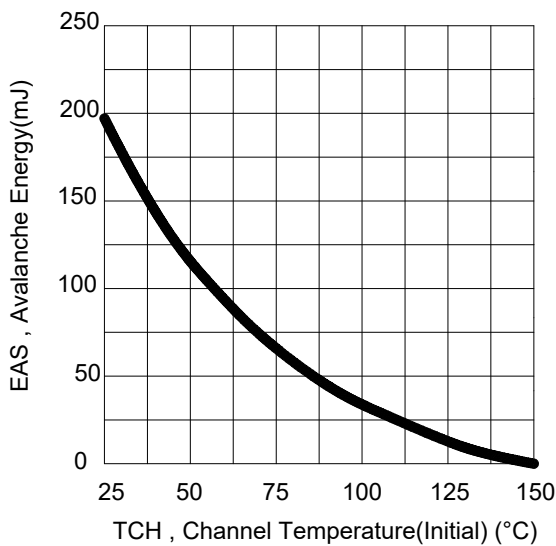
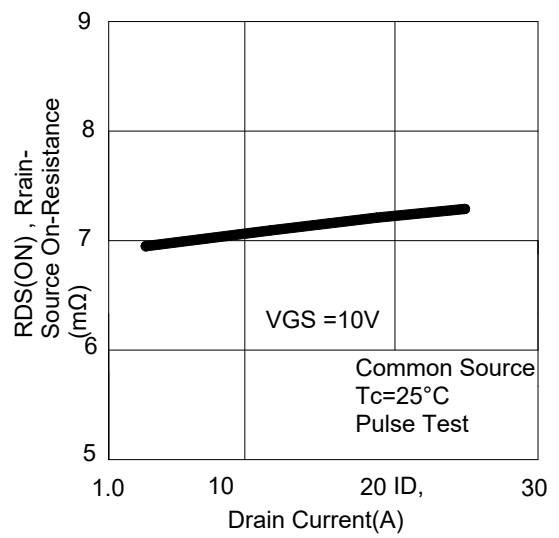
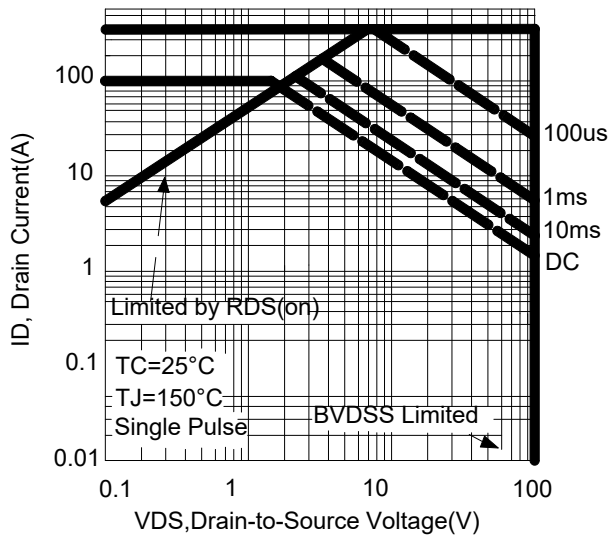
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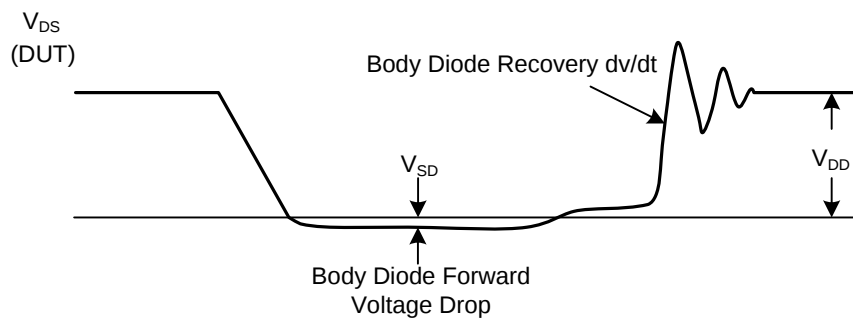
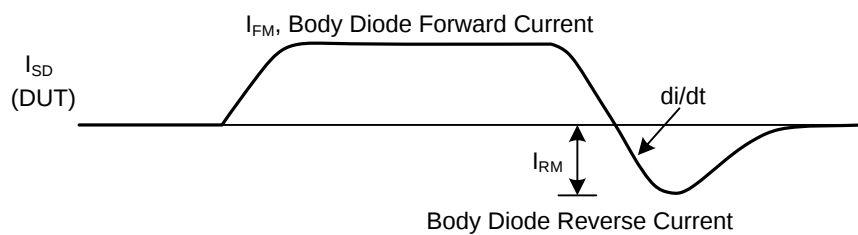
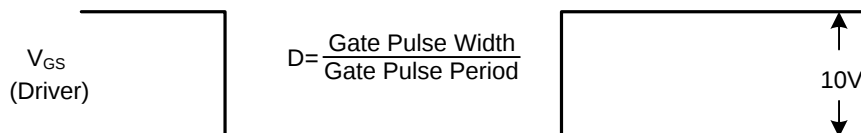
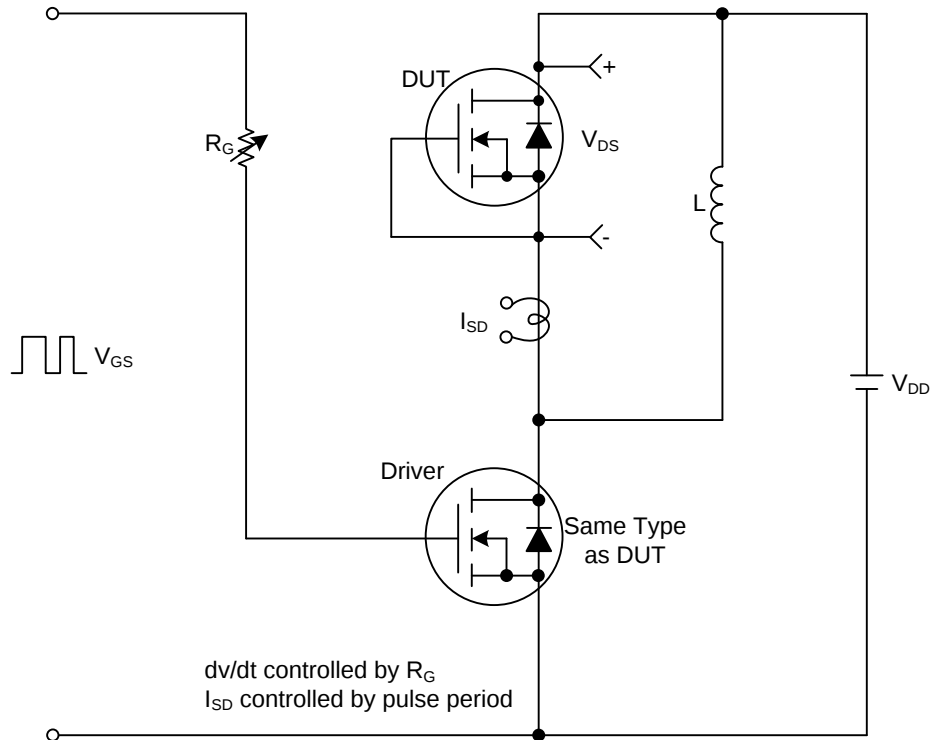
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Peak Diode Recovery dv/dt Test Circuit & Waveforms



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