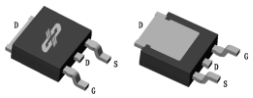
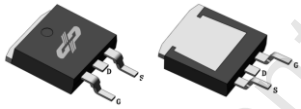
Product Summary

Part #	V_{DS}	$R_{DS(on).typ}$	I_D
DP260N20DGNI	200V	23mΩ	47A
DP260N20PGNI			
DP260N20BGNI			

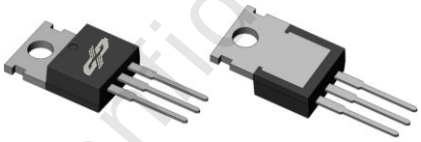
TO-252

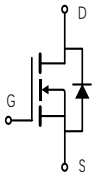


TO-263



TO-220





100% Avalanche Tested

100% Rg Tested

Features

- Uses advanced MOSFET-DPMOS2 technology
- Extremely low $R_{DS(on)}$/High Speed Power Switching
- Excellent Q_gx$R_{DS(on)}$ product(FOM)
- Qualified according to JEDEC criteria

Applications

- Motor control and drive
- Power Management Switches
- High-frequency switching and synchronous rectification

Package Marking and Ordering Information

Part #	Marking	Package	Packing
DP260N20DGNI	260N20DGNI	TO-252	Tape/Reel
DP260N20PGNI	260N20PGNI	TO-220	Tube
DP260N20BGNI	260N20BGNI	TO-263	Tape/Reel

Halogen-Free

Absolute Maximum Ratings

Parameter	**Symbol**	**Value**	**Unit**
Drain-source voltage	V_{DS}	200	V
Continuous drain current T_C = 25°C T_C = 100°C	I_D	 47 30	A
Pulsed drain current (T_C = 25°C, t_p limited by T_{jmax})	$I_{D\ pulse}$	188	A
Avalanche energy, single pulse (L=10mH, Rg=25)[1]	E_{AS}	4500	mJ
Gate-Source voltage	V_{GS}	±20	V
Power dissipation (T_C = 25°C)	P_{tot}	147	W
Operating junction and storage temperature	T_j , T_{stg}	-55...+150	°C

[1].EAS is tested at starting T_j = 25°C, V_{GS} = 10V.

Thermal Resistance

Parameter	Symbol	Max	Unit
Thermal resistance, junction – case.	R_{thJC}	0.9	°C/W
Thermal resistance, junction – ambient(min. footprint)	R_{thJA}	75	

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

Parameter	Symbol	Value			Unit	Test Condition
		min.	typ.	max.		
Static Characteristic						
Drain-source breakdown voltage	BV_{DSS}	200	-	-	V	V_{GS}=0V, I_D=250uA
Gate threshold voltage	$V_{GS(th)}$	2	3	4	V	V_{DS}=V_{GS},I_D=250uA
Zero gate voltage drain current	I_{DSS}	- -	- 1.6	1 -	μA	V_{DS}=250V,V_{GS}=0V T_j=25°C T_j=100°C
Gate-source leakage current	I_{GSS}	-	-	±100	nA	V_{GS}=±20V,V_{DS}=0V
Drain-source on-state resistance	$R_{DS(on)}$	-	23	29	mΩ	T_j=25°C V_{GS}=10V, I_D=20A
Gate resistance	R_g	-	2	5	Ω	V_{GS}=0V, V_{DS}=0V, f=1MHz
Transconductance[2]	g_{fs}	-	23	-	S	V_{DS}=5V,I_D=10A
Dynamic Characteristic[2]						
Input Capacitance	C_{iss}	-	2355	-	pF	V_{GS}=0V, V_{DS}=100V, f=1MHz
Output Capacitance	C_{oss}	-	175	-		
Reverse Transfer Capacitance	C_{rss}	-	9	-		
Gate Total Charge@V_{GS}=10V	Q_g	-	37.5	-	nC	V_{GS}=10V, V_{DS}=100V, I_D=10A, f=1MHz
Gate-Source charge	Q_{gs}	-	14	-		
Gate-Drain charge	Q_{gd}	-	9	-		
Turn-on delay time	$t_{d(on)}$	-	16	-	ns	V_{GS}=10V, V_{DD}=100V, R_{G_ext}=2.7Ω,ID=10A
Rise time	t_r	-	30	-		
Turn-off delay time	$t_{d(off)}$	-	28	-		
Fall time	t_f	-	12	-		

Body Diode Characteristic

Parameter	Symbol	Value			Unit	Test Condition
		min.	typ.	max.		
Body Diode Forward Voltage	V_{SD}	-	-	1.2	V	V_{GS}=0V,I_{SD}=25A
Diode continuous forward current	I_s	-	-	47	A	T_C = 25°C
Diode pluse current	$I_{s\ pluse}$	-	-	188	A	T_C = 25°C
Body Diode Reverse Recovery Time[2]	t_{rr}	-	121	-	ns	I_F=12A, dI/dt=100A/μs
Body Diode Reverse Recovery Charge[2]	Q_{rr}	-	510	-	nC	

[2]. Defined by design. Not subject to production test

Typical Performance Characteristics

Fig 1: Output Characteristics

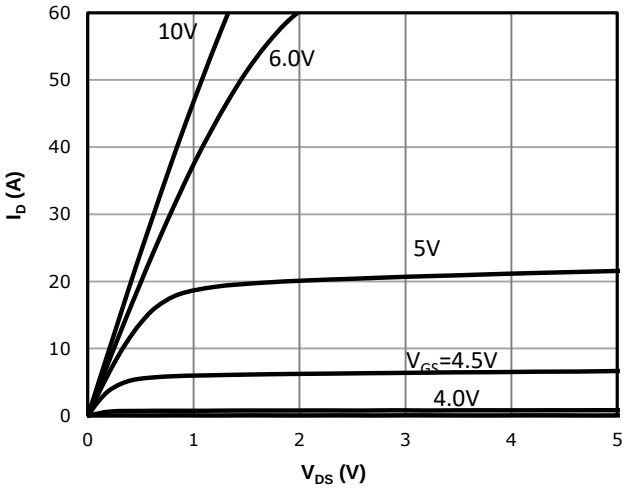


Fig 2: Transfer Characteristics

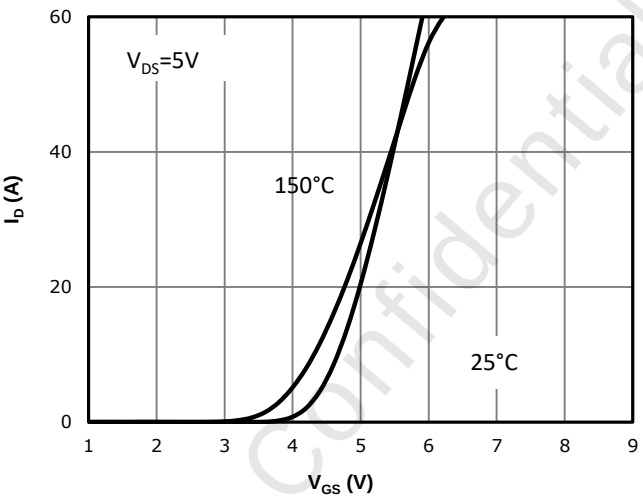


Fig 3: Rds(on) vs Drain Current and Gate Voltage

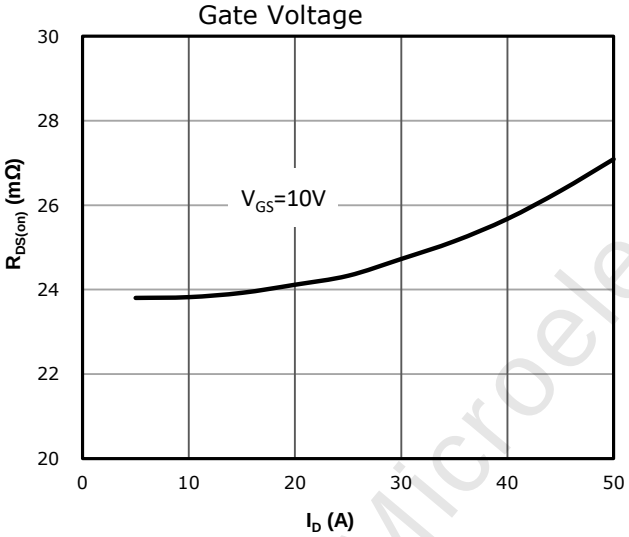


Fig 4: Rds(on) vs Gate Voltage

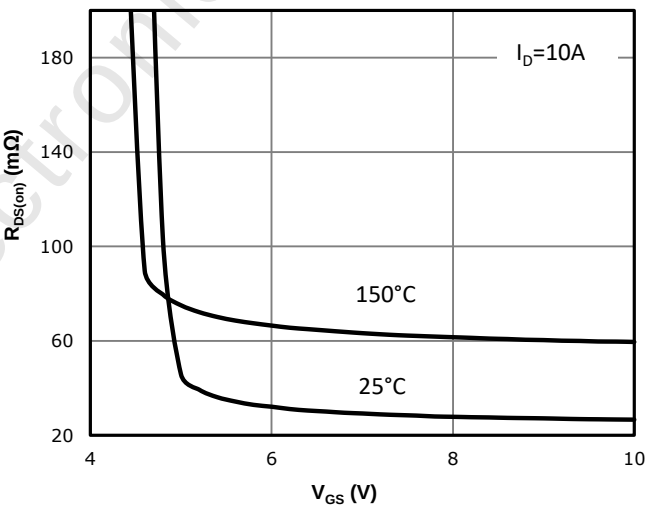


Fig 5: Rds(on) vs. Temperature

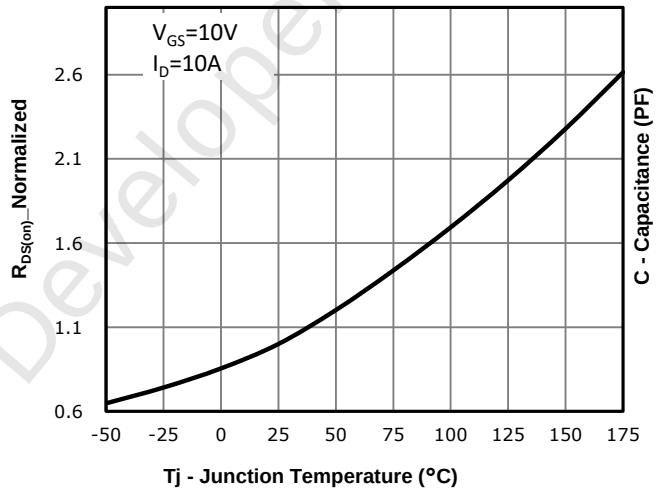


Fig 6: Capacitance Characteristics

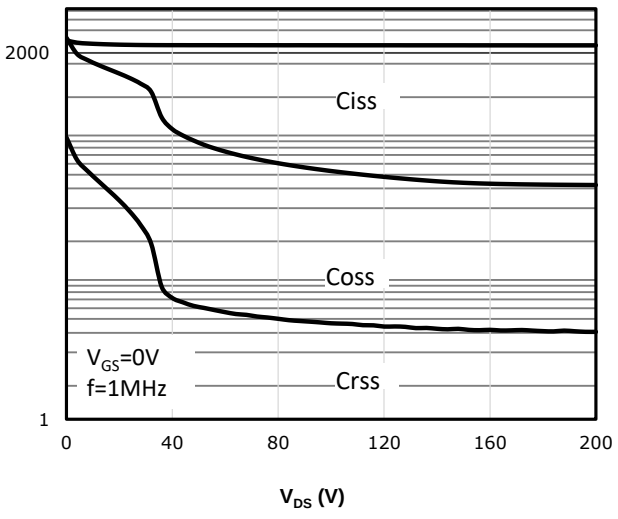


Fig 7: Gate Charge Characteristics

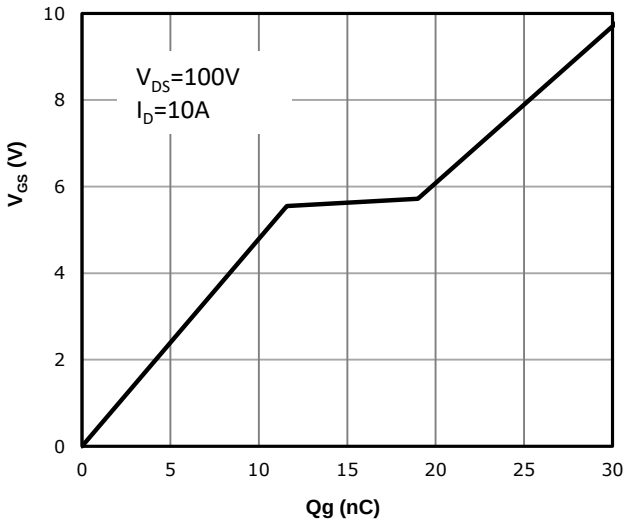


Fig 8: Body-diode Forward Characteristics

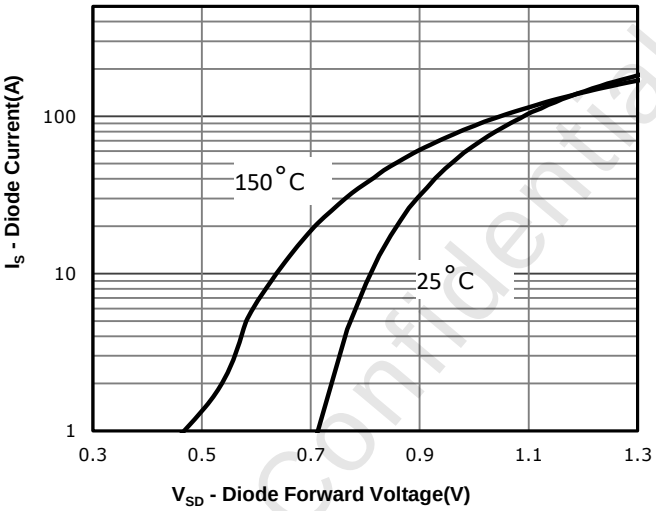


Fig 9: Power Dissipation

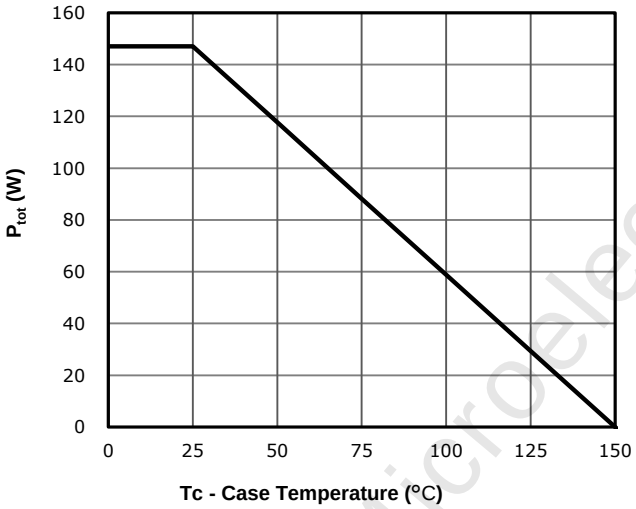


Fig 10: Drain Current Derating

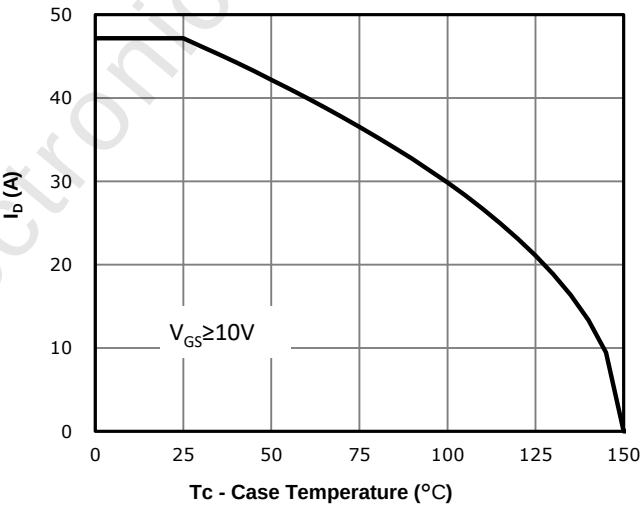


Fig 11: Safe Operating Area

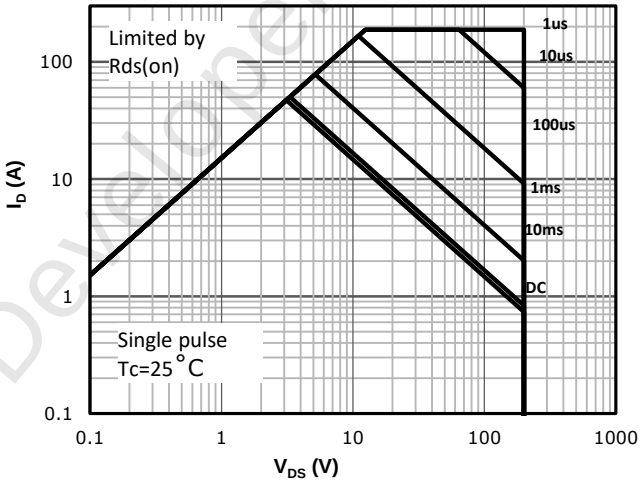
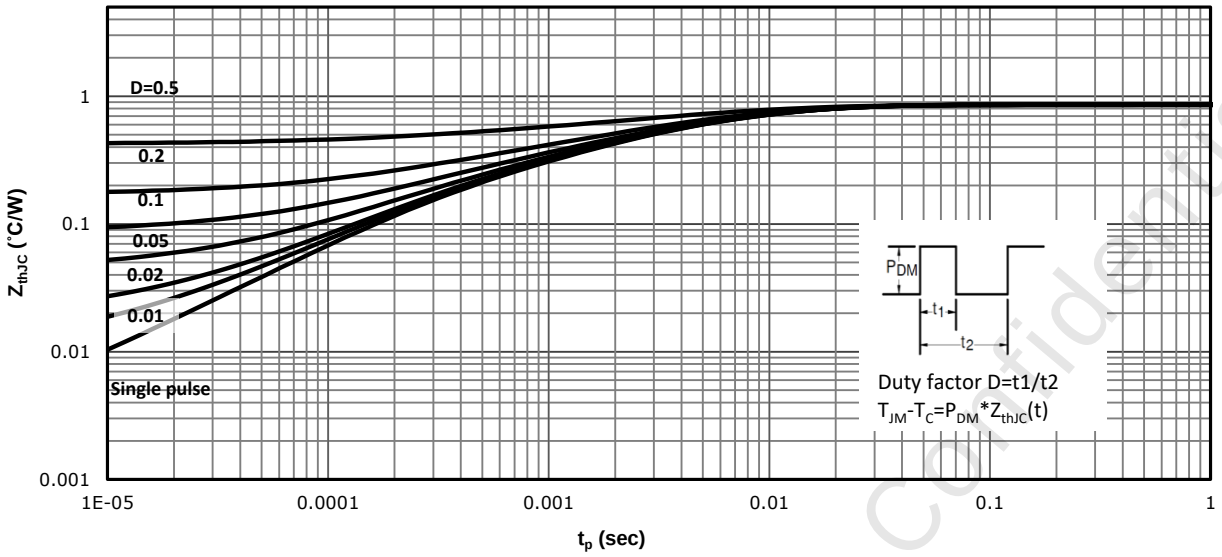
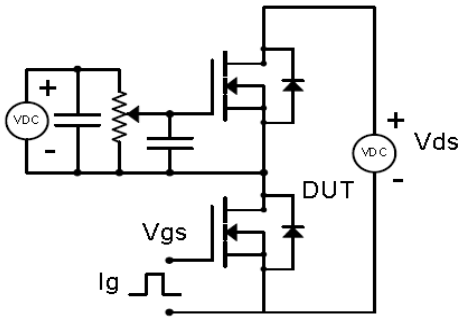


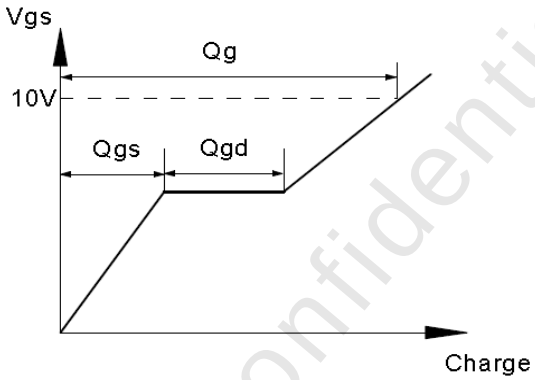
Fig 12: Max. Transient Thermal Impedance



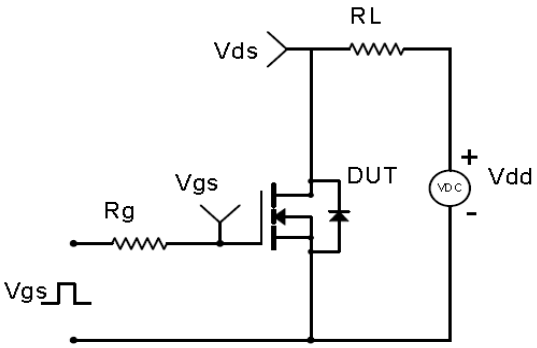
Test Circuit & Waveform

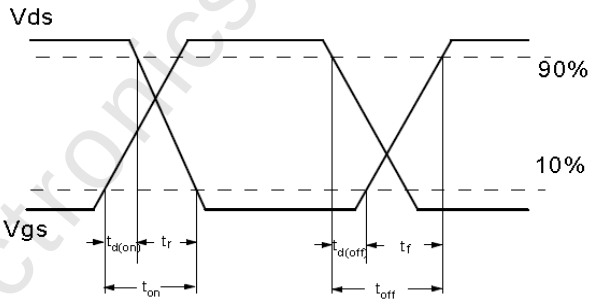
Gate Charge Test Circuit & Waveform



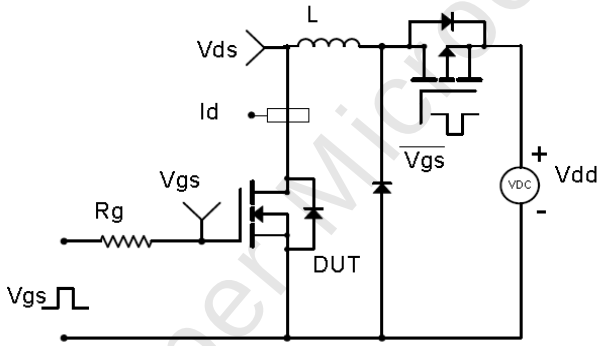


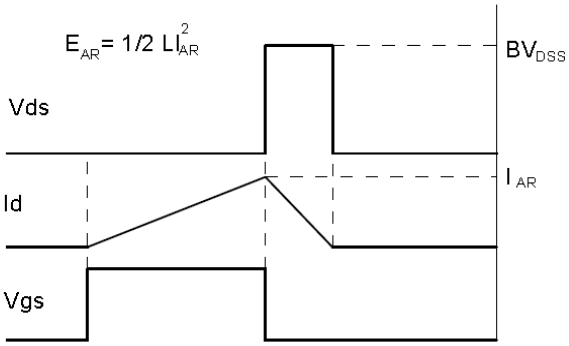
Resistive Switching Test Circuit & Waveforms



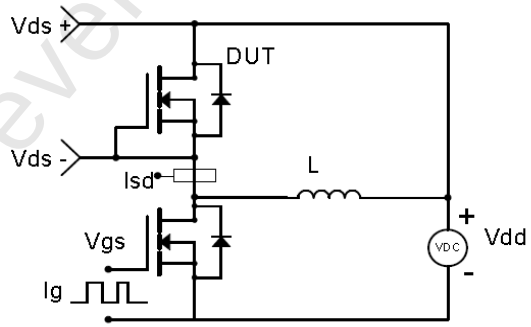


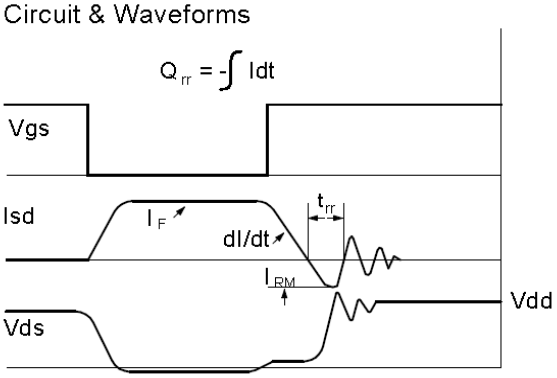
Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



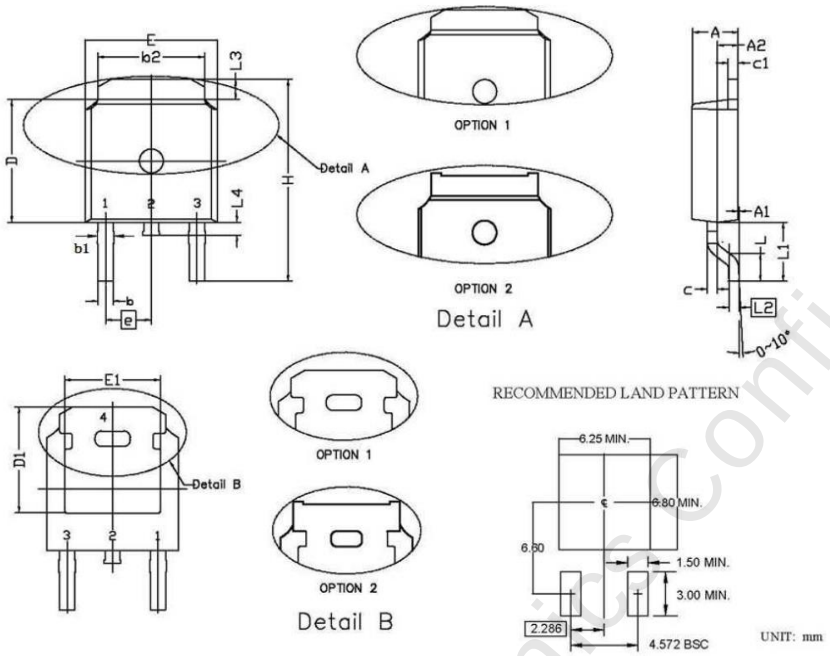


Diode Recovery Test Circuit & Waveforms



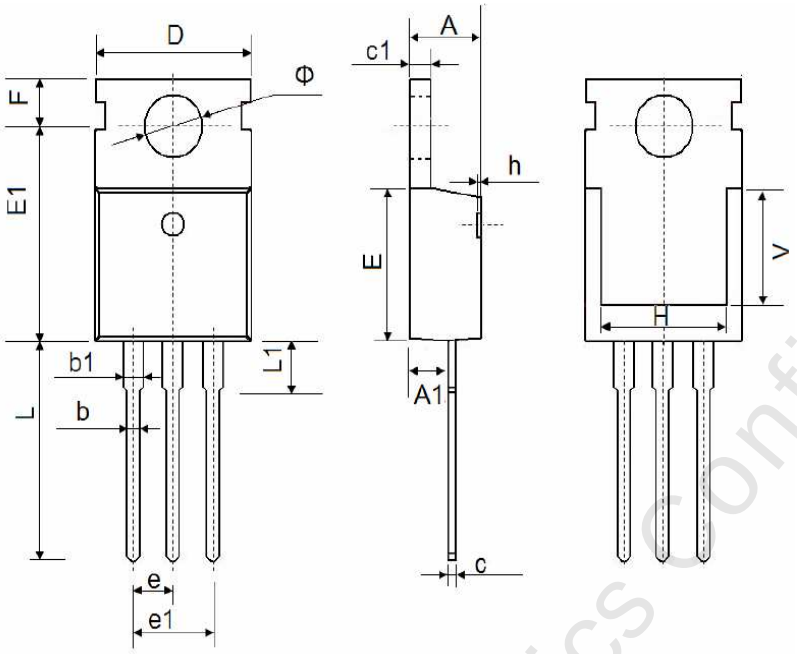


Package Outline: TO-252



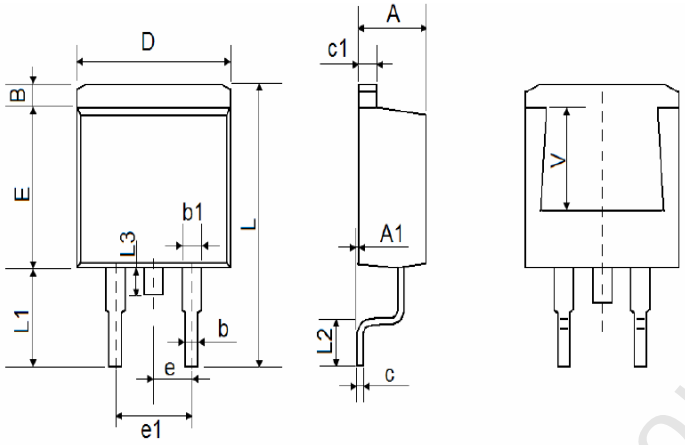
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.15	2.45	0.085	0.096
A1	0.00	0.15	0.000	0.006
A2	0.76	1.36	0.030	0.054
b	0.60	0.91	0.024	0.036
b1	0.65	1.15	0.026	0.045
b2	5.00	5.64	0.197	0.222
c	0.45	0.61	0.018	0.024
c1	0.36	0.66	0.014	0.026
D	5.80	6.30	0.228	0.248
D1	5.00	6.00	0.197	0.236
e	2.29 BSC.		0.090 BSC.	
E	6.30	6.90	0.248	0.272
E1	4.55	5.30	0.179	0.209
H	9.40	10.48	0.370	0.413
L	1.18	1.70	0.046	0.067
L1	2.92 REF		0.115 REF	
L2	0.36	0.66	0.014	0.026
L3	0.72	1.35	0.028	0.053
L4	0.60	1.20	0.024	0.047

Package Outline: TO-220-3L



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.30	4.70	0.169	0.185
A1	2.25	2.55	0.089	0.100
b	0.71	0.91	0.028	0.036
b1	1.17	1.37	0.046	0.054
c	0.33	0.65	0.013	0.026
c1	1.20	1.40	0.047	0.055
D	9.91	10.25	0.390	0.404
E	8.95	9.75	0.352	0.384
E1	12.65	12.95	0.498	0.510
e	2.54 BSC.		0.100 BSC.	
e1	4.98	5.18	0.196	0.204
F	2.65	2.95	0.104	0.116
H	7.90	8.10	0.311	0.319
h	0.00	0.30	0.000	0.012
L	12.90	13.40	0.508	0.528
L1	2.85	3.25	0.112	0.128
V	7.500 Ref.		0.295 Ref.	
Φ	3.400	3.800	0.134	0.150

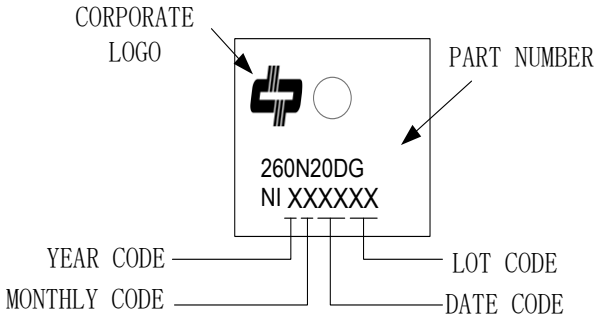
Package Outline: TO-263



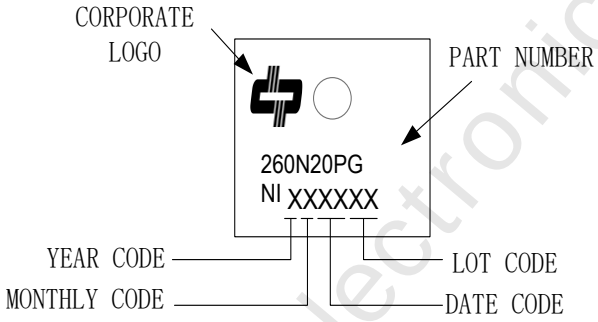
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.40	4.80	0.173	0.189
A1	0.00	0.15	0.000	0.006
B	1.17	1.37	0.046	0.054
b	0.71	0.91	0.028	0.036
b1	1.17	1.37	0.046	0.054
c	0.31	0.53	0.012	0.021
c1	1.17	1.37	0.046	0.054
D	10.01	10.31	0.394	0.406
E	8.50	8.90	0.335	0.350
e	2.54 BSC.		0.100 BSC.	
e1	4.98	5.18	0.196	0.204
L	15.05	15.45	0.593	0.608
L1	5.08	5.48	0.200	0.216
L2	2.34	2.74	0.092	0.108
L3	1.30	1.70	0.051	0.067
V	5.600 Ref.		0.220 Ref.	

Part Marking Information

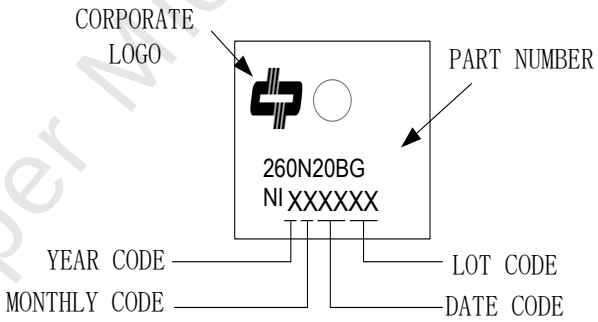
DP260N20DGNI



DP260N20PGNI



DP260N20BGNI



Revision History

Revison	Major changes
1.0	Release for formal version

重要声明Important Notice

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