

H7534N

30V Single N-Channel MOSFET

VDSS	R _{DS(ON)} (Typ)	ID
30V	3.9mΩ	30A

Features:

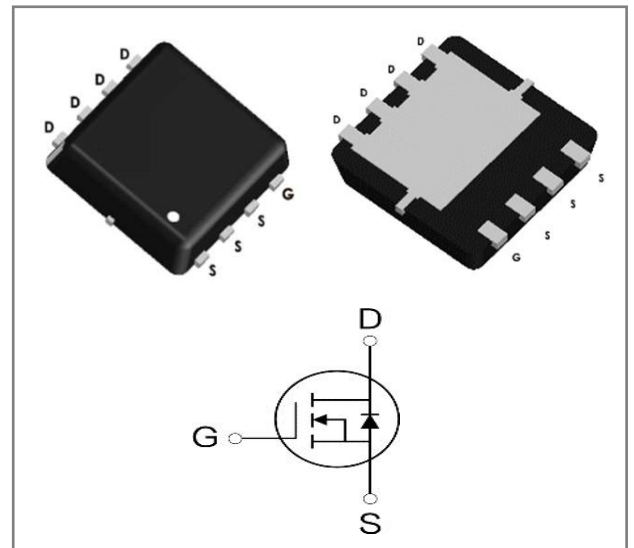
- Fast switching speed
- 100% avalanche tested
- Improved dv/dt capability
- Enhanced Avalanche Ruggedness
- Lead Free

Applications:

- Synchronous Rectification in SMPS
- Hard Switching and High Speed Circuit
- Power Tools
- UPS
- Motor Control

Ordering Information

Part Number	Package	Marking	Packing	Qty.
H7534N	DFN3*3	7534N	Tape&reel	5000 PCS



Absolute Maximum Ratings (Tc= 25°C unless otherwise specified)

Symbol	Parameter	Rating	Units
VDS	Drain-to-Source Voltage	30	V
VGS	Gate- to- Source Voltage	±20	V
ID	Continuous Drain Current TC=25°C	30	A
	Continuous Drain Current TC=100°C	20	
IDM	Pulsed Drain Current	100	
PD	Power Dissipation	23	W
EAS	Single Pulse Avalanche Energy L = 0.5mH, RG = 25 Ω, TC=25°C	65	mJ
TJ, TSTG	Operating Junction and Storage Temperature Range	-55 to 150	°C

Thermal Characteristics

Symbol	Parameter	Typ	Max	Unit
RθJC	Thermal Resistance Junction-Case	4.6	5.4	°C/ W
RθJA	Thermal Resistance Junction-Ambient	60	75	°C/ W

Electrical Characteristics (TJ= 25℃ unless otherwise specified)

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
V(BR)DSS	Drain- Source Breakdown Voltage	30	--	--	V	VGS=0V,ID=250μA
IDSS	Zero Gate Voltage Drain Current (25℃)	--	--	1	μA	VDS=30V,VGS=0V
	Zero Gate Voltage Drain Current (100℃)	--	--	100	μA	VDS=30V,VGS=0V
IGSS	Gate to Source Forward Leakage	--	--	100	nA	VGS=20V ,VDS=0V
	Gate to Source Reverse Leakage	--	--	-100		VGS=-20V ,VDS=0V
VGS(TH)	Gate Threshold Voltage	1	1.5	2	V	VGS=VDS,ID=250μA
RDS(on)	Static Drain- to- Source On-Resistance(Note*2)	--	3.9	4.8	mΩ	VGS=10V,ID=20A
		--	5.2	6.4	mΩ	VGS=4.5V,ID=20A

Dynamic Electrical Characteristics

Ciss	Input Capacitance	--	865	--	pF	VGS=0V VDS=15V f=1MHz
Coss	Output Capacitance	--	430	--		
Crss	Reverse Transfer Capacitance	--	55	--		
Rg	Gate Resistance	--	1.8	--	Ω	f=1MHz
Qg	Total Gate Charge	--	17	--	nC	VDS=15V ID=20A VGS=10V
Qgs	Gate- to- Source Charge	--	3.8	--		
Qgd	Gate-to-Drain(" Miller") Charge	--	3.2	--		

Switching Characteristics

td(ON)	Turn- on Delay Time	--	9	--	nS	VDS=15V ID=20A RG=3Ω VGS=10V
trise	Rise Time	--	73	--		
td(OFF)	Turn- OFF Delay Time	--	18	--		
tfall	Fall Time	--	80	--		

Source- Drain Diode Characteristics

VSD	Diode Forward Voltage	--	0.7	1.1	V	IF=1A,VGS=0V
trr	Reverse Recovery Time	--	14	--	nS	VR=15V,IF=20A di/dt=100A/μs
Qrr	Reverse Recovery Charge	--	3	--	nC	

Notes:

- * 1. Repetitive rating, pulse width limited by maximum junction temperature.
- * 2. Pulse Test: Pulse width ≤ 300μs, Duty Cycle ≤ 2%

Typical Characteristics

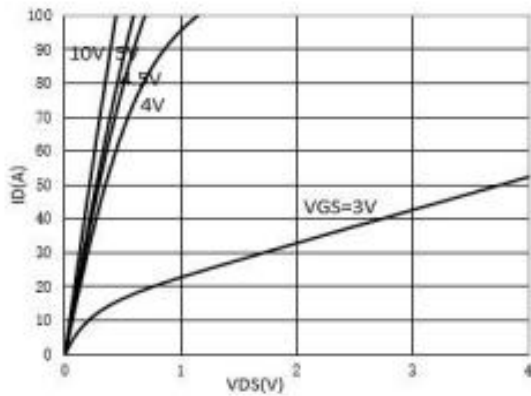


Figure 1: On-Region Characteristics (Note E)

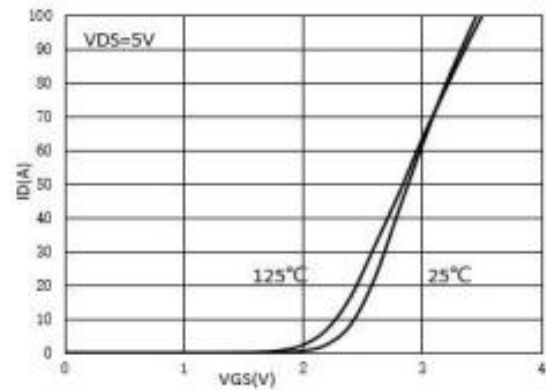


Figure 2: Transfer Characteristics (Note E)

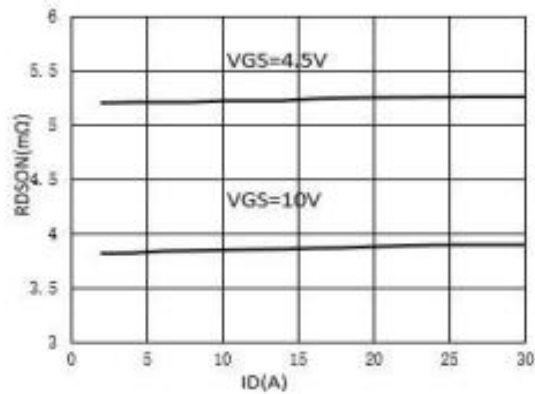


Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

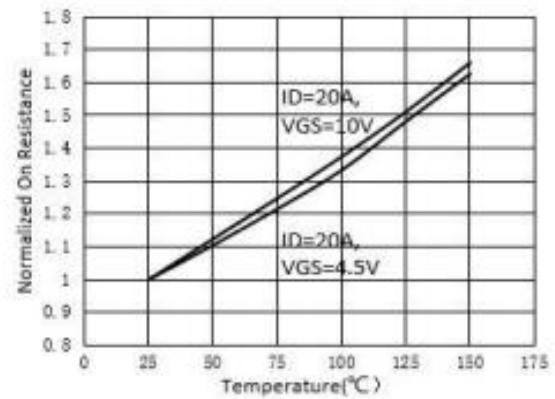


Figure 4: On-Resistance vs. Junction Temperature (Note E)

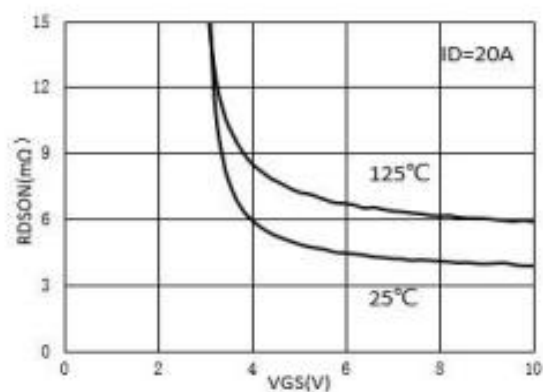


Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

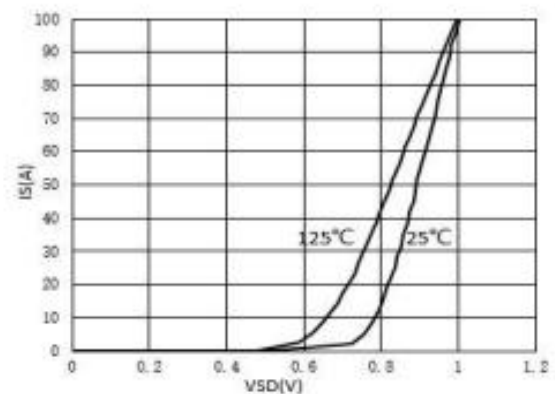


Figure 6: Body-Diode Characteristics (Note E)

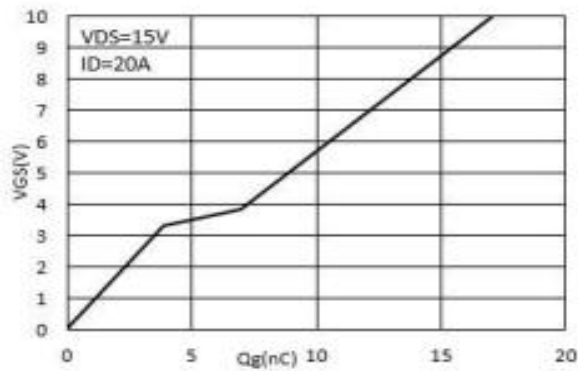


Figure 7: Gate-Charge Characteristics

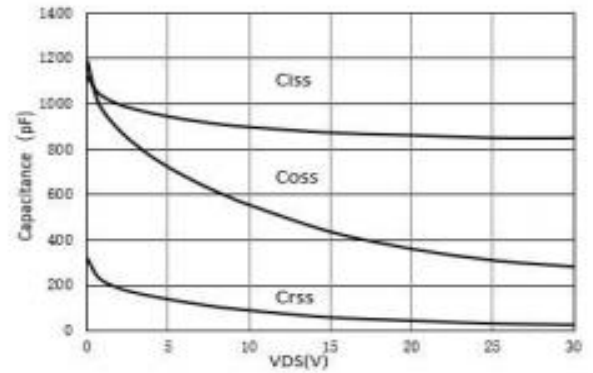


Figure 8: Capacitance Characteristics

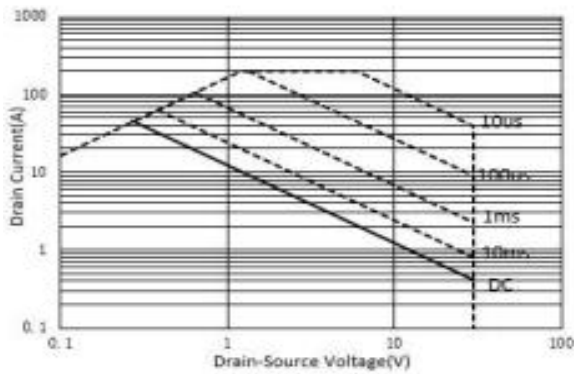


Figure 9: Maximum Forward Biased Safe Operating Area

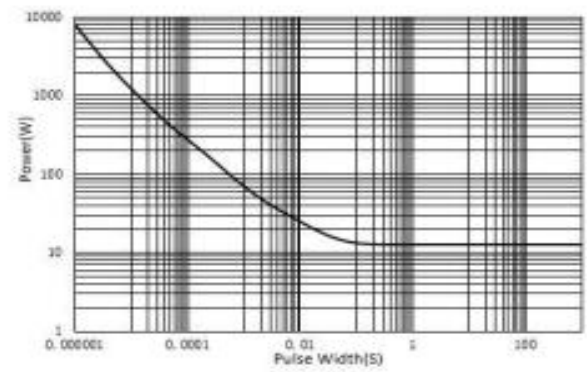


Figure 10: Single Pulse Power Rating Junction-to-Case

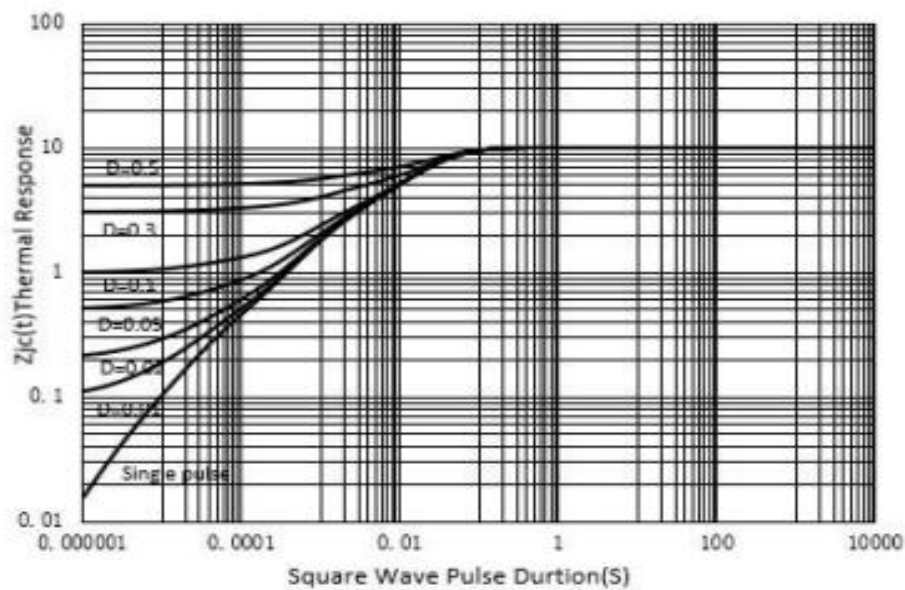


Figure 11: Normalized Maximum Transient Thermal Impedance (Note F)

Test Circuits and Waveforms

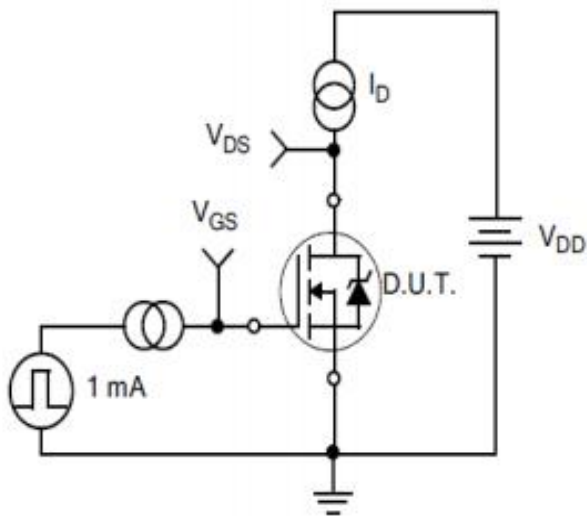


Figure A.
Gate Charge Test Circuit

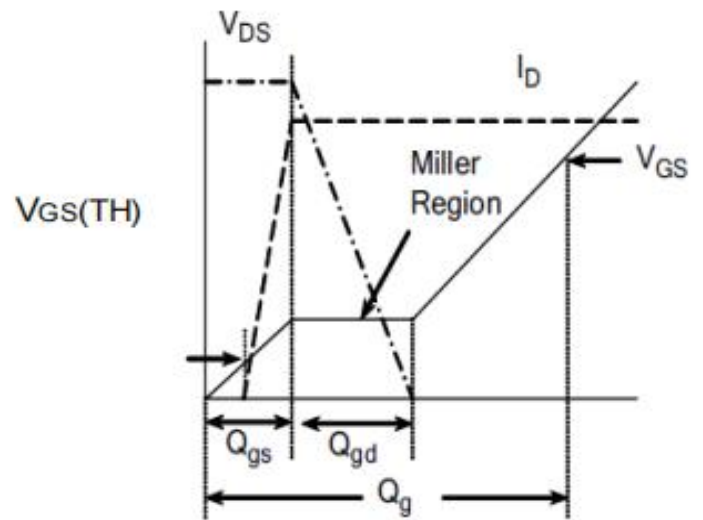


Figure B.
Gate Charge Waveform

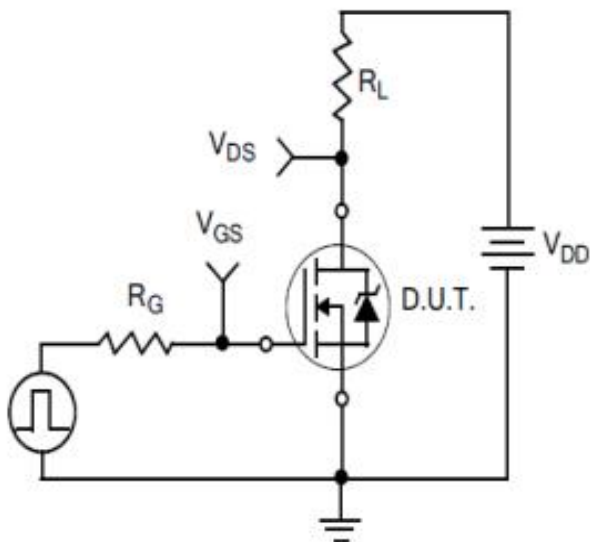


Figure C.
Resistive Switching Test Circuit

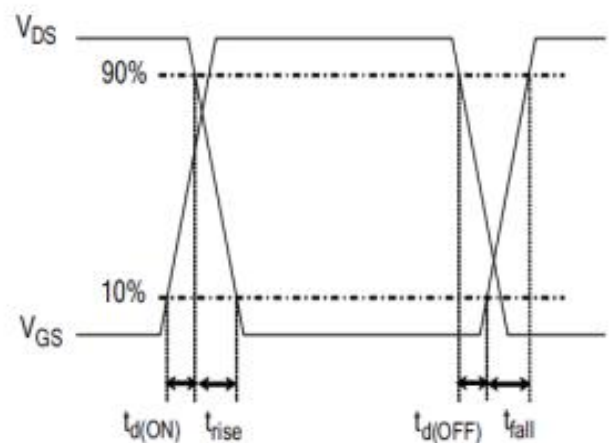
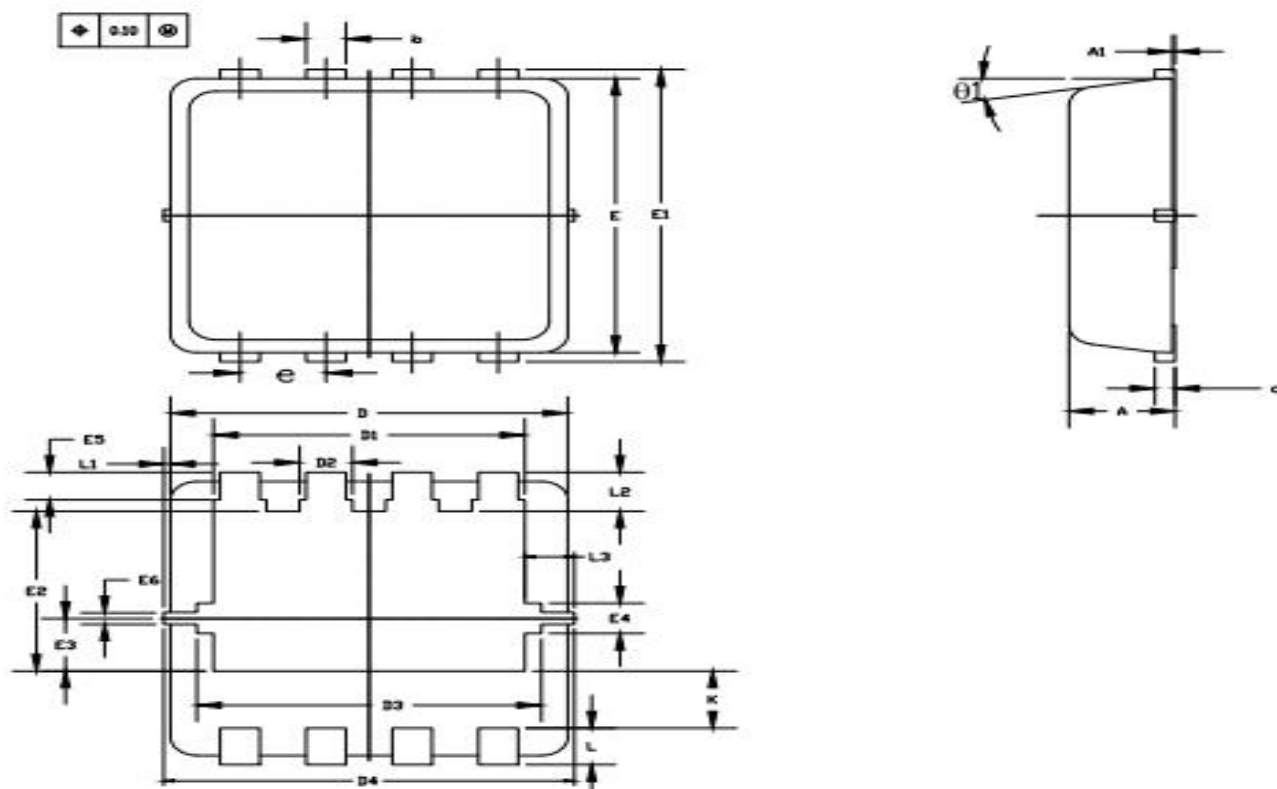


Figure D.
Resistive Switching Waveforms

Package outline drawing (DFN3*3 Unit: mm)



SYMBOLS	DIMENSIONS IN MILLIMETERS			DIMENSIONS IN INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.70	0.80	0.90	0.028	0.031	0.035
A1	0.00	0.025	0.05	0.000	0.001	0.002
b	0.24	0.30	0.35	0.009	0.012	0.014
c	0.10	0.15	0.25	0.004	0.006	0.010
D	2.90	3.00	3.10	0.114	0.118	0.122
D1	2.25	2.35	2.45	0.089	0.093	0.097
D2	0.30	0.40	0.50	0.012	0.016	0.020
D3	2.50	2.60	2.70	0.098	0.102	0.106
D4	3.00	3.10	3.20	0.118	0.122	0.126
E	2.90	3.00	3.10	0.114	0.118	0.122
E1	3.10	3.20	3.30	0.122	0.126	0.130
E2	1.65	1.75	1.85	0.065	0.069	0.073
E3	0.48	0.58	0.68	0.019	0.023	0.027
E4	0.23	0.33	0.43	0.009	0.013	0.017
E5	0.20	0.30	0.40	0.008	0.012	0.016
E6	0.075	0.125	0.175	0.003	0.005	0.007
e	0.60	0.65	0.70	0.024	0.026	0.028
K	0.52	0.62	0.72	0.020	0.024	0.028
L	0.30	0.40	0.50	0.012	0.016	0.020
L1	0	0.05	0.10	0	0.002	0.004
L2	0.33	0.43	0.53	0.013	0.017	0.021
L3	0.275	0.375	0.475	0.011	0.015	0.019
θ1	0°	10°	12°	0°	10°	12°