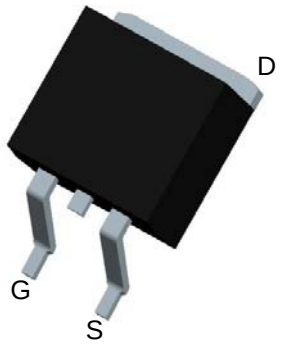
RU2H30S

N-Channel Advanced Power MOSFET

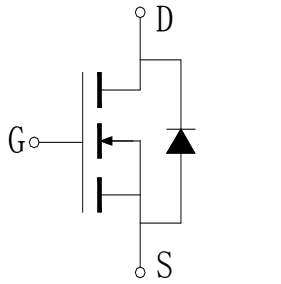
Features

- 200V/30A,
  RDS (ON) =75mΩ(Typ.) @ VGS=10V
- Ultra Low On-Resistance
- Fast Switching and Fully Avalanche Rated
- 100% avalanche tested
- 175°C Operating Temperature
- Lead Free and Green Available

Pin Description



TO220



N-Channel MOSFET

Applications

- Switching Application Systems
- UPS

Absolute Maximum Ratings

Symbol	Parameter		Rating	Unit
Common Ratings (T_C=25°C Unless Otherwise Noted)				
V_{DSS}	Drain-Source Voltage		200	V
V_{GSS}	Gate-Source Voltage		±25	
T_J	Maximum Junction Temperature		175	°C
T_{STG}	Storage Temperature Range		-55 to 175	°C
I_S	Diode Continuous Forward Current	T_C=25°C	30	A
Mounted on Large Heat Sink				
I_{DP} ①	300μs Pulse Drain Current Tested	T_C=25°C	120	A
I_D ②	Continuous Drain Current(V_{GS}=10V)	T_C=25°C	30	A
		T_C=100°C	23	
P_D	Maximum Power Dissipation	T_C=25°C	176	W
		T_C=100°C	88	
$R_{\theta JC}$	Thermal Resistance-Junction to Case		0.85	°C/W
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient		62.5	°C/W
Drain-Source Avalanche Ratings				
E_{AS} ③	Avalanche Energy, Single Pulsed		81	mJ

Electrical Characteristics (T_C=25°C Unless Otherwise Noted)

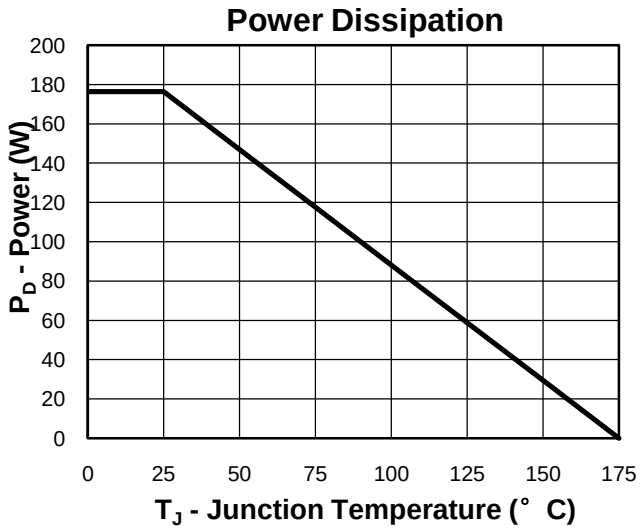
Symbol	Parameter	Test Condition	RU2H30S			Unit
			Min.	Typ.	Max.	
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_{DS}=250μA	200			V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=200V, V_{GS}=0V			1	μA
		T_J=125°C			30	
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_{DS}=250μA	2		4	V
I_{GSS}	Gate Leakage Current	V_{GS}=±25V, V_{DS}=0V			±100	nA
$R_{DS(ON)}$④	Drain-Source On-state Resistance	V_{GS}=10V, I_{DS}=17A		75	85	mΩ
Diode Characteristics						
V_{SD}④	Diode Forward Voltage	I_{SD}=30A, V_{GS}=0V			1.2	V
t_{rr}	Reverse Recovery Time	I_{SD}=30A, dI_{SD}/dt=100A/μs		150		ns
Q_{rr}	Reverse Recovery Charge			125		nC
Dynamic Characteristics⑤						
R_G	Gate Resistance	V_{GS}=0V,V_{DS}=0V,F=1MHz		1		Ω
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=100V, Frequency=1.0MHz		2140		pF
C_{oss}	Output Capacitance			308		
C_{rss}	Reverse Transfer Capacitance			78		
$t_{d(ON)}$	Turn-on Delay Time	V_{DD}=100V, R_L=3Ω, I_{DS}=30A, V_{GEN}=10V, R_G=6Ω		16		ns
t_r	Turn-on Rise Time			48		
$t_{d(OFF)}$	Turn-off Delay Time			38		
t_f	Turn-off Fall Time			33		
Gate Charge Characteristics⑤						
Q_g	Total Gate Charge	V_{DS}=160V, V_{GS}=10V, I_{DS}=30A		116		nC
Q_{gs}	Gate-Source Charge			23		
Q_{gd}	Gate-Drain Charge			52		

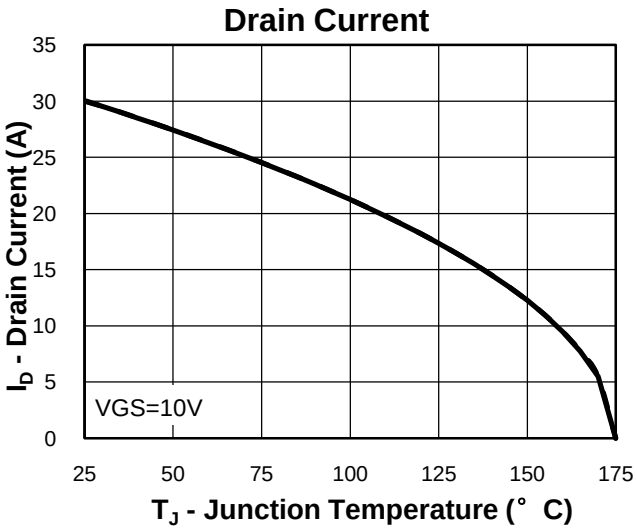
Notes:
①Pulse width limited by safe operating area.
②Calculated continuous current based on maximum allowable junction temperature.
③Limited by T_{Jmax}, I_{AS} =18A, V_{DD} = 60V, R_G = 50Ω , Starting T_J = 25°C.
④Pulse test;Pulse width≤300μs, duty cycle≤2%.
⑤Guaranteed by design, not subject to production testing.

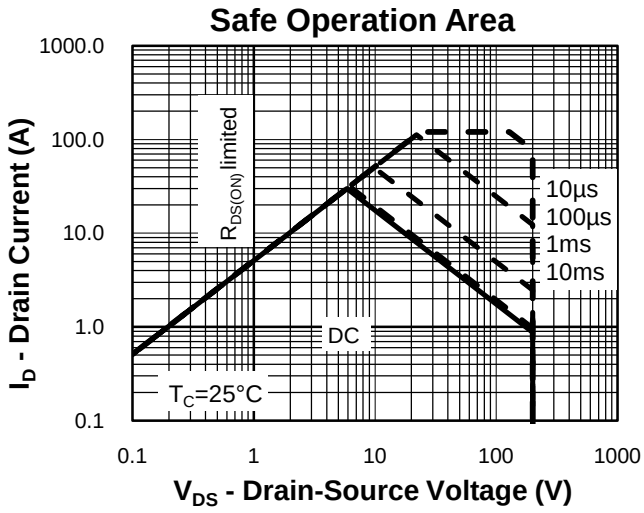
Ordering and Marking Information

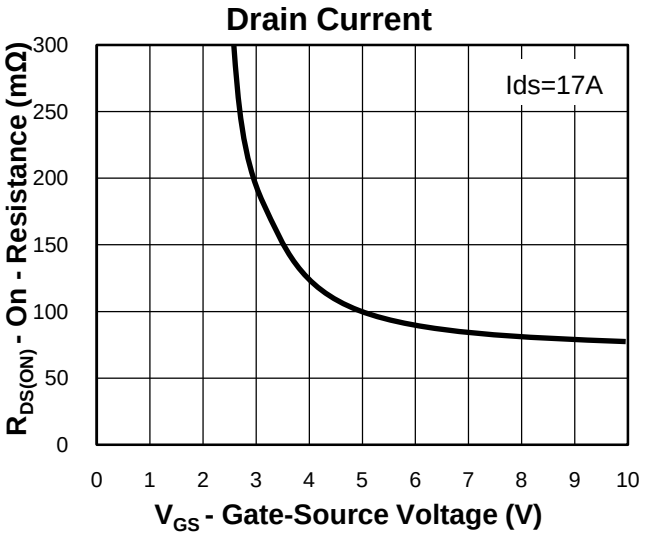
Device	Marking	Package	Packaging	Quantity	Reel Size	Tape width
RU2H30S	RU2H30S	TO263	Tube	50	-	-

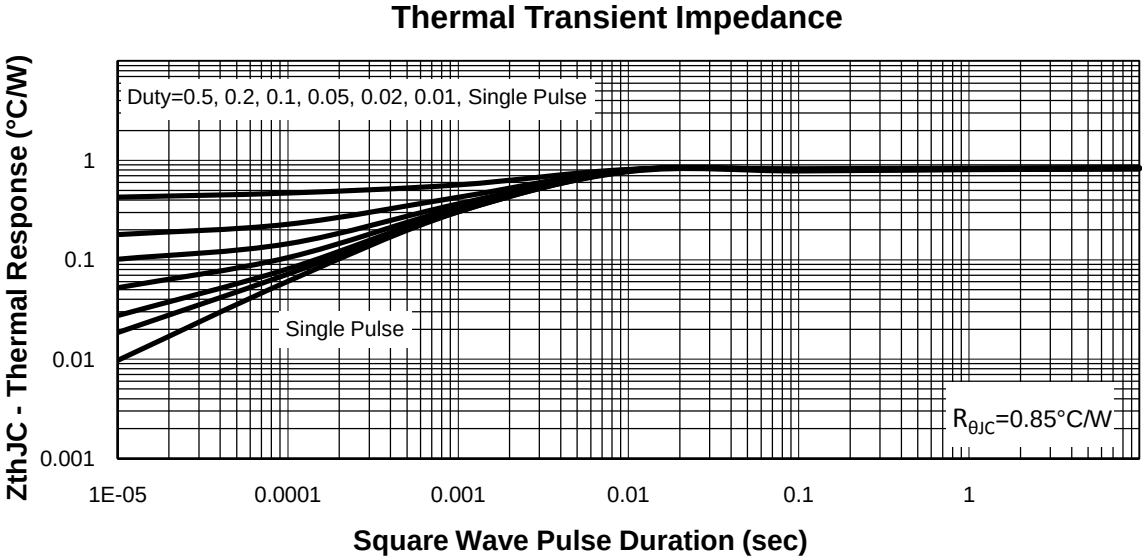
Typical Characteristics











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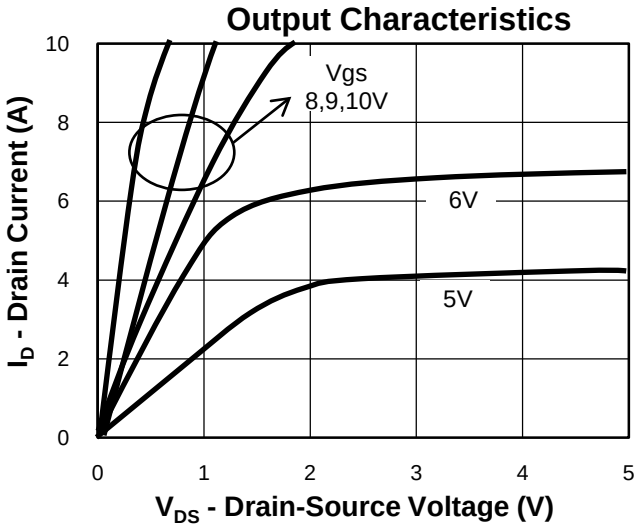
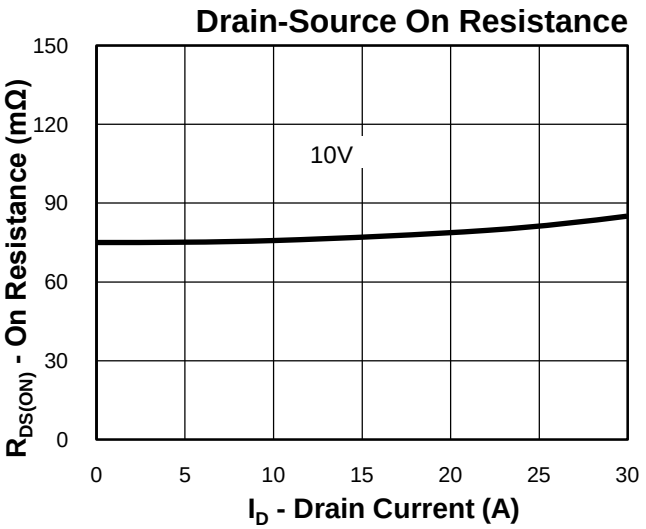
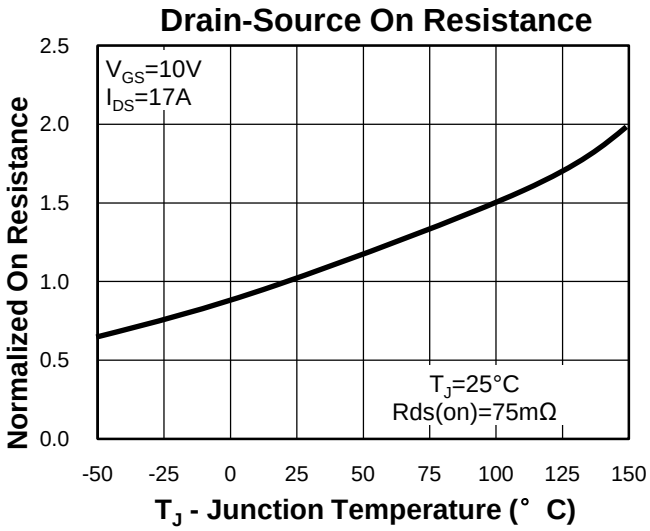
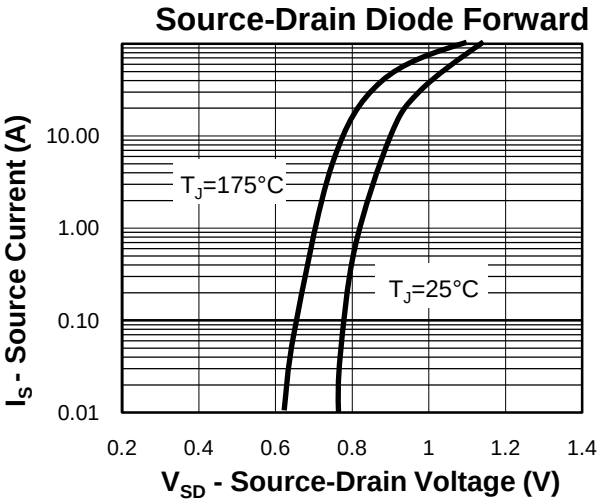
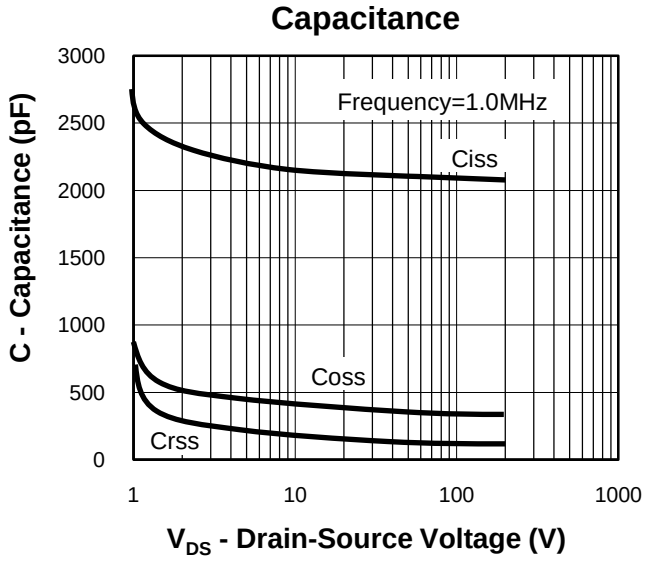
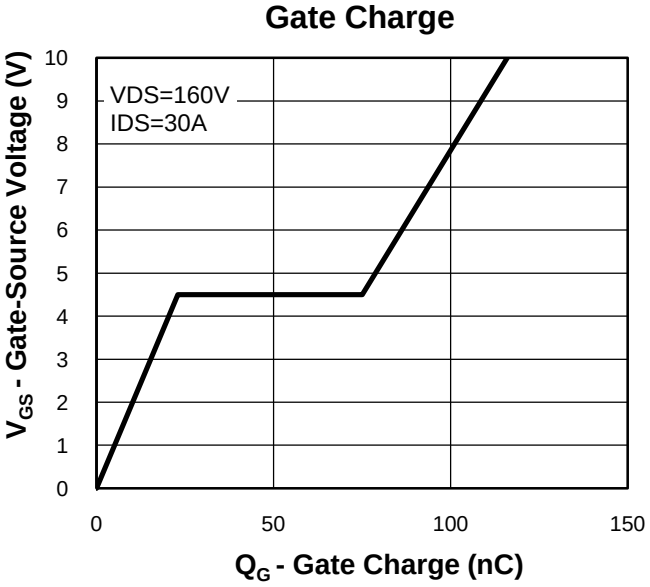




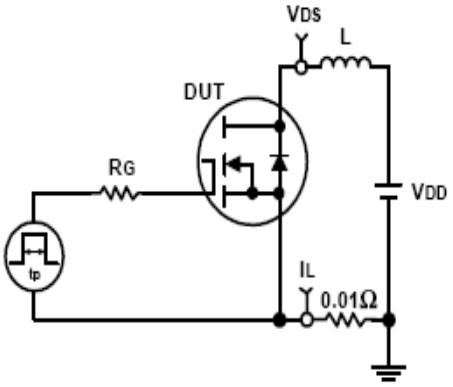


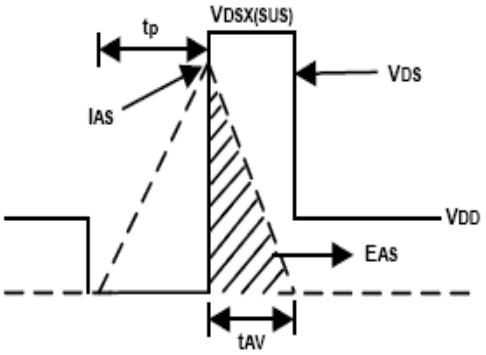




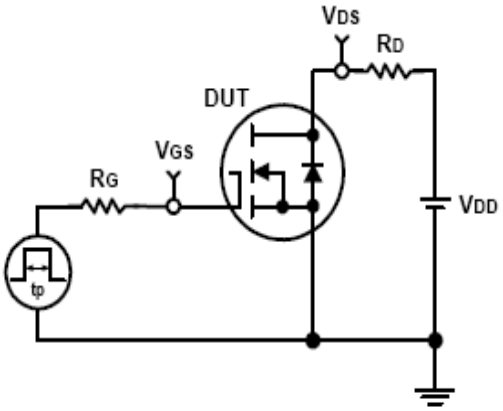


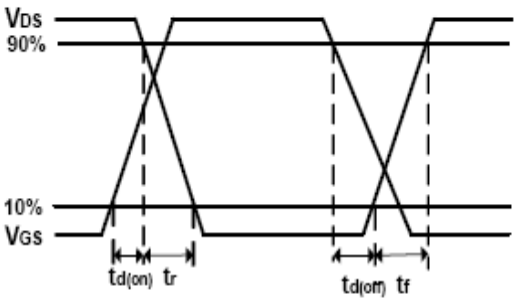
Avalanche Test Circuit and Waveforms





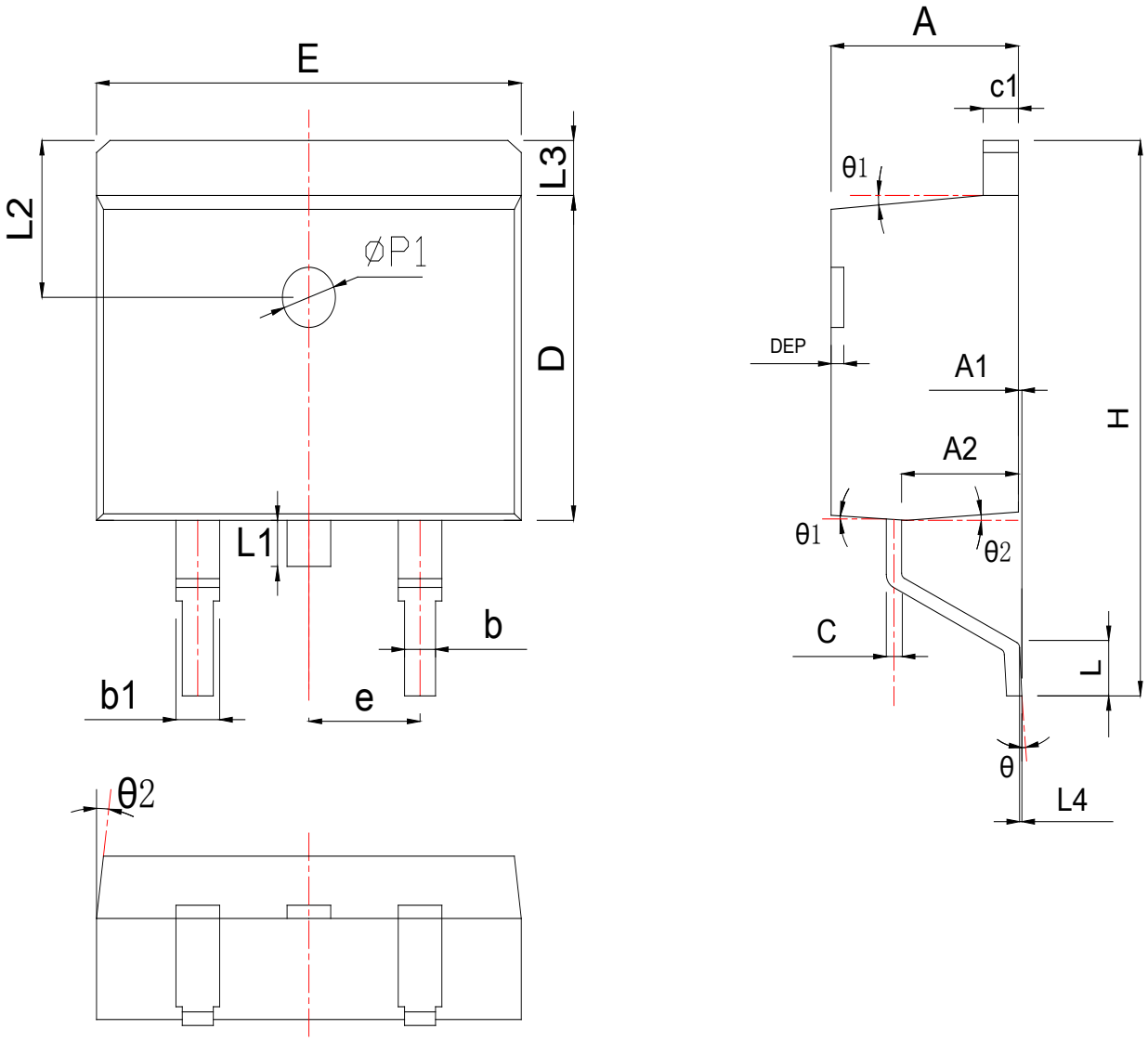
Switching Time Test Circuit and Waveforms





Package Information

TO263



SYMBOL	MM			INCH			SYMBOL	MM			INCH		
	MIN	NOM	MAX	MIN	NOM	MAX		MIN	NOM	MAX	MIN	NOM	MAX
A	4.40	4.55	4.70	0.173	0.179	0.185	L	2.00	2.30	2.60	0.079	0.091	0.102
A1	0.00	0.10	0.25	0.000	0.005	0.010	L3	1.17	1.29	1.40	0.046	0.051	0.055
A2	2.59	2.69	2.79	0.102	0.106	0.110	L1	*	*	1.70	*	*	0.067
b	0.77	*	0.90	0.030		0.035	L4	0.25 BSC			0.01 BSC		
b1	1.23	*	1.36	0.048		0.054	L2	2.50 REF			0.098 REF		
c	0.34	*	0.47	0.013		0.019	θ	0°	*	8°	0°	*	8°
c1	1.22	*	1.32	0.048		0.052	θ1	5°	7°	9°	5°	7°	9°
D	8.60	8.70	8.80	0.339	0.343	0.346	θ2	1°	3°	5°	1°	3°	5°
E	10.00	10.13	10.26	0.394	0.399	0.404	DEP	0.05	0.10	0.20	0.002	0.004	0.008
e	2.54BSC			0.100BSC			Φp1	1.40	1.50	1.60	0.055	0.059	0.063
H	14.70	15.10	15.50	0.579	0.594	0.610							

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