

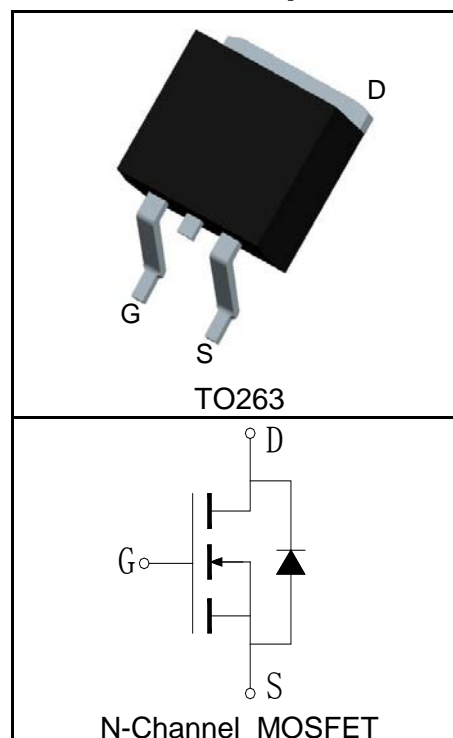
Features

- 100V/130A,
RDS (ON) = 7mΩ(Typ.)@VGS=10V
- Super High Dense Cell Design
- Ultra Low On-Resistance
- 100% avalanche tested
- Lead Free and Green Devices Available (RoHS Compliant)

Applications

- High Efficiency Synchronous Rectification in SMPS
- High Speed Power Switching

Pin Description



Absolute Maximum Ratings

Symbol	Parameter		Rating	Unit
Common Ratings (T _C =25°C Unless Otherwise Noted)				
V _{DSS}	Drain-Source Voltage		100	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	130	A
Mounted on Large Heat Sink				
I _{DP} ^①	300μs Pulse Drain Current Tested	T _C =25°C	520	A
I _D ^②	Continuous Drain Current(V _{GS} =10V)	T _C =25°C	130	A
		T _C =100°C	92	
P _D	Maximum Power Dissipation	T _C =25°C	300	W
		T _C =100°C	150	
R _{θJC}	Thermal Resistance-Junction to Case		0.5	°C/W
R _{θJA}	Thermal Resistance-Junction to Ambient		62.5	°C/W
Drain-Source Avalanche Ratings				
E _{AS} ^③	Avalanche Energy, Single Pulsed		552	mJ

Electrical Characteristics ($T_C=25^{\circ}\text{C}$ Unless Otherwise Noted)

Symbol	Parameter	Test Condition	RU1H130S			Unit
			Min.	Typ.	Max.	
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250μA	100			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =100V, 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} =65A		7	9	mΩ
Diode Characteristics						
V _{SD} ^④	Diode Forward Voltage	I _{SD} =65A, V _{GS} =0V			1.2	V
t _{rr}	Reverse Recovery Time	I _{SD} =65A, dI _{SD} /dt=100A/μs		42		ns
Q _{rr}	Reverse Recovery Charge			64		μC
Dynamic Characteristics ^⑤						
R _G	Gate Resistance	V _{GS} =0V,V _{DS} =0V,F=1MHz		1		Ω
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =50V, Frequency=1.0MHz		6800		pF
C _{oss}	Output Capacitance			630		
C _{rss}	Reverse Transfer Capacitance			350		
t _{d(ON)}	Turn-on Delay Time	V _{DD} =50V, R _L =1Ω, I _{DS} =65A, V _{GEN} =10V, R _G =5Ω		22		ns
t _r	Turn-on Rise Time			86		
t _{d(OFF)}	Turn-off Delay Time			72		
t _f	Turn-off Fall Time			66		
Gate Charge Characteristics ^⑤						
Q _g	Total Gate Charge	V _{DS} =80V, V _{GS} =10V, I _{DS} =65A		130		nC
Q _{gs}	Gate-Source Charge			32		
Q _{gd}	Gate-Drain Charge			55		

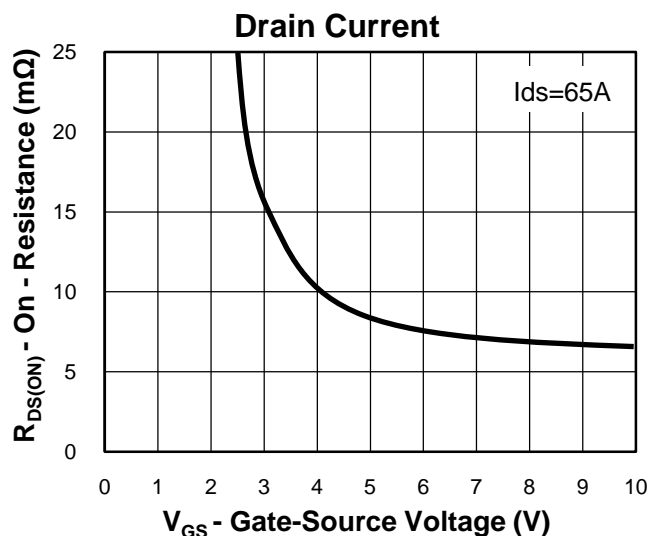
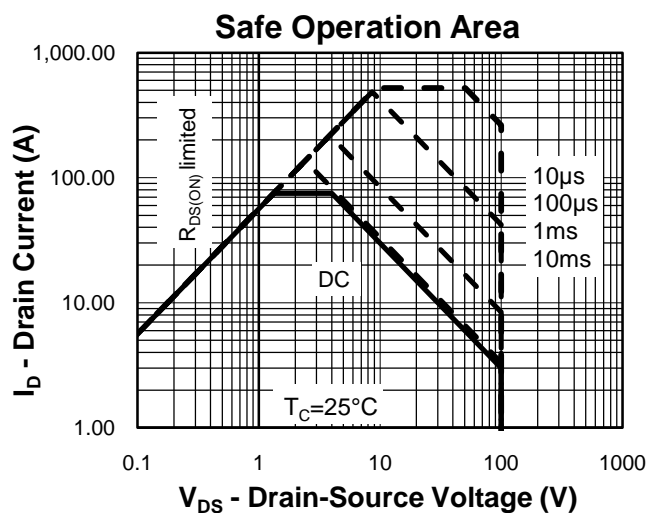
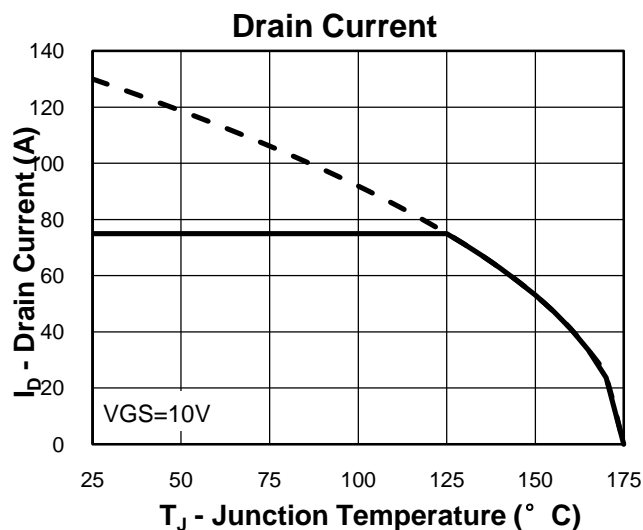
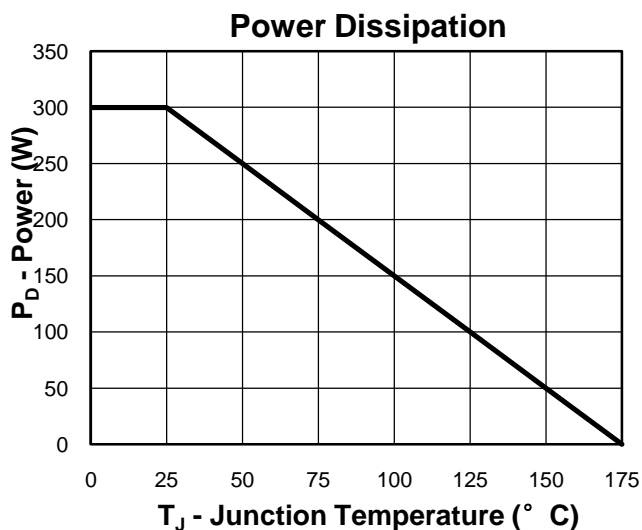
Notes:

- ① Pulse width limited by safe operating area.
- ② Calculated continuous current based on maximum allowable junction temperature. Package limitation current is 75A.
- ③ Limited by T_{Jmax} , $I_{AS}=47A$, $V_{DD}=48V$, $R_G=50\Omega$, Starting $T_J=25^{\circ}\text{C}$.
- ④ Pulse test ; Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
- ⑤ Guaranteed by design, not subject to production testing.

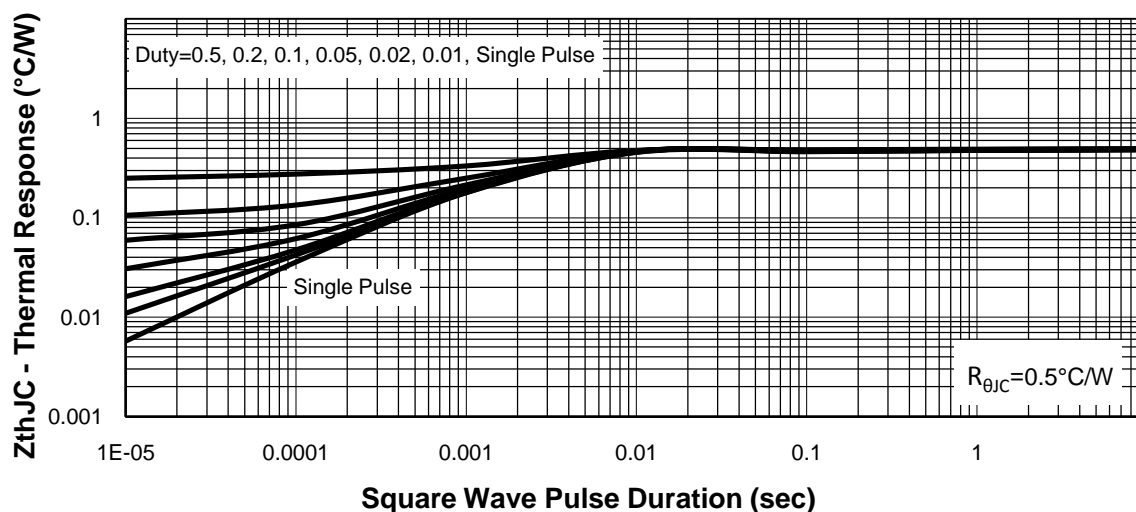
Ordering and Marking Information

Device	Marking	Package	Packaging	Quantity	Reel Size	Tape width
RU1H130S	RU1H130S	TO263	Tube	50	-	-

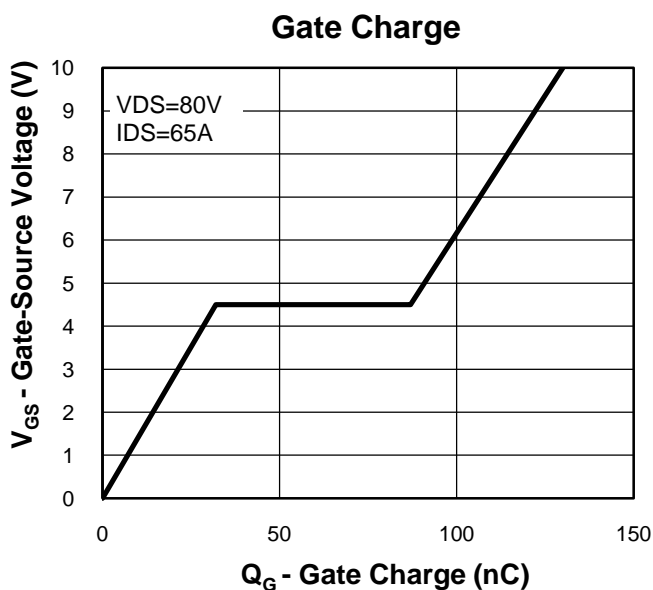
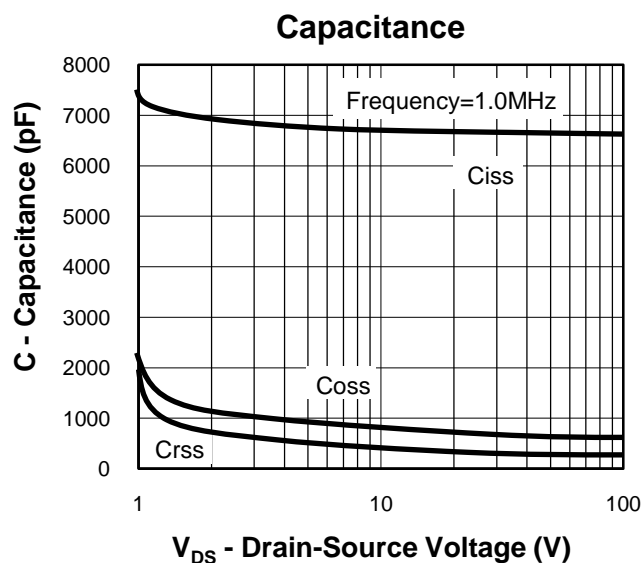
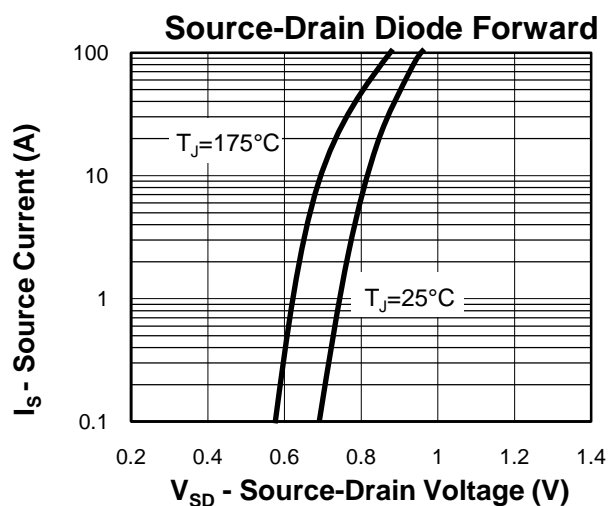
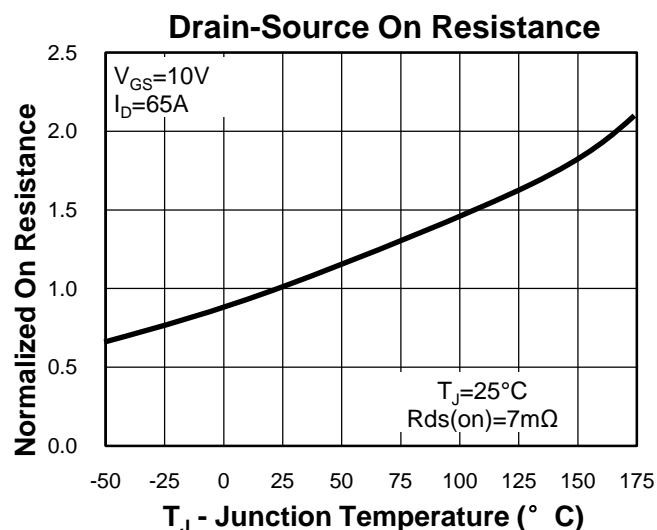
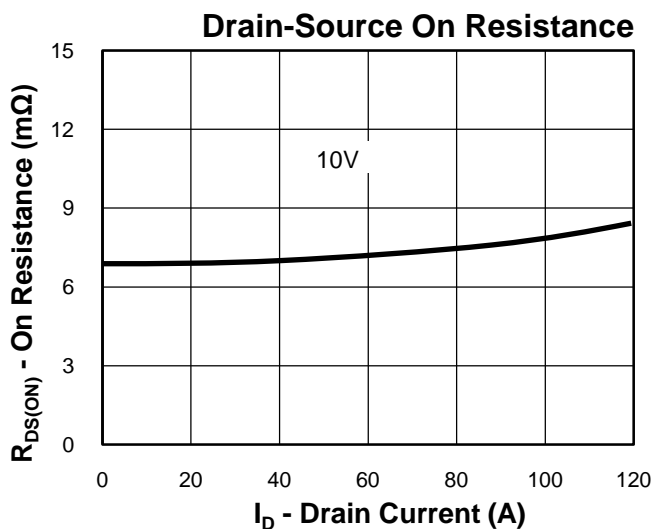
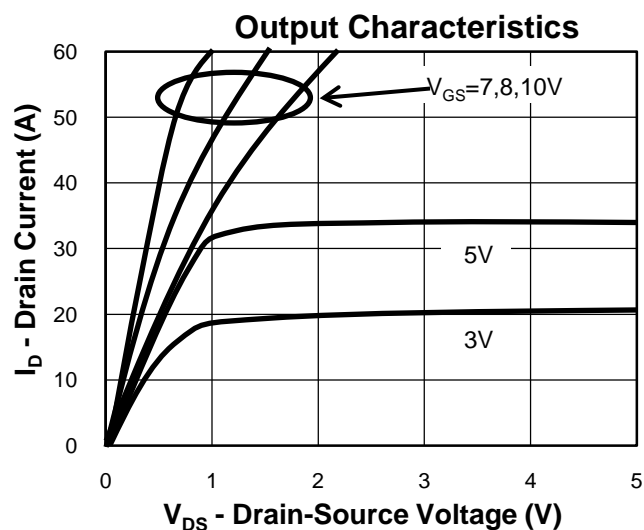
Typical Characteristics



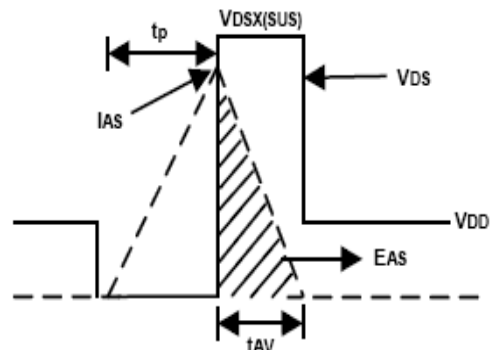
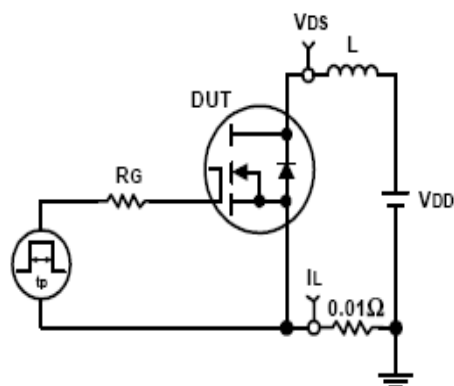
Thermal Transient Impedance



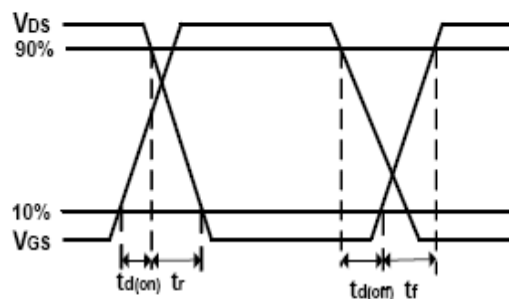
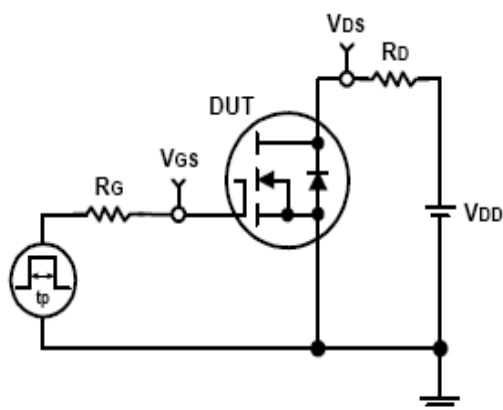
Typical Characteristics



Avalanche Test Circuit and Waveforms

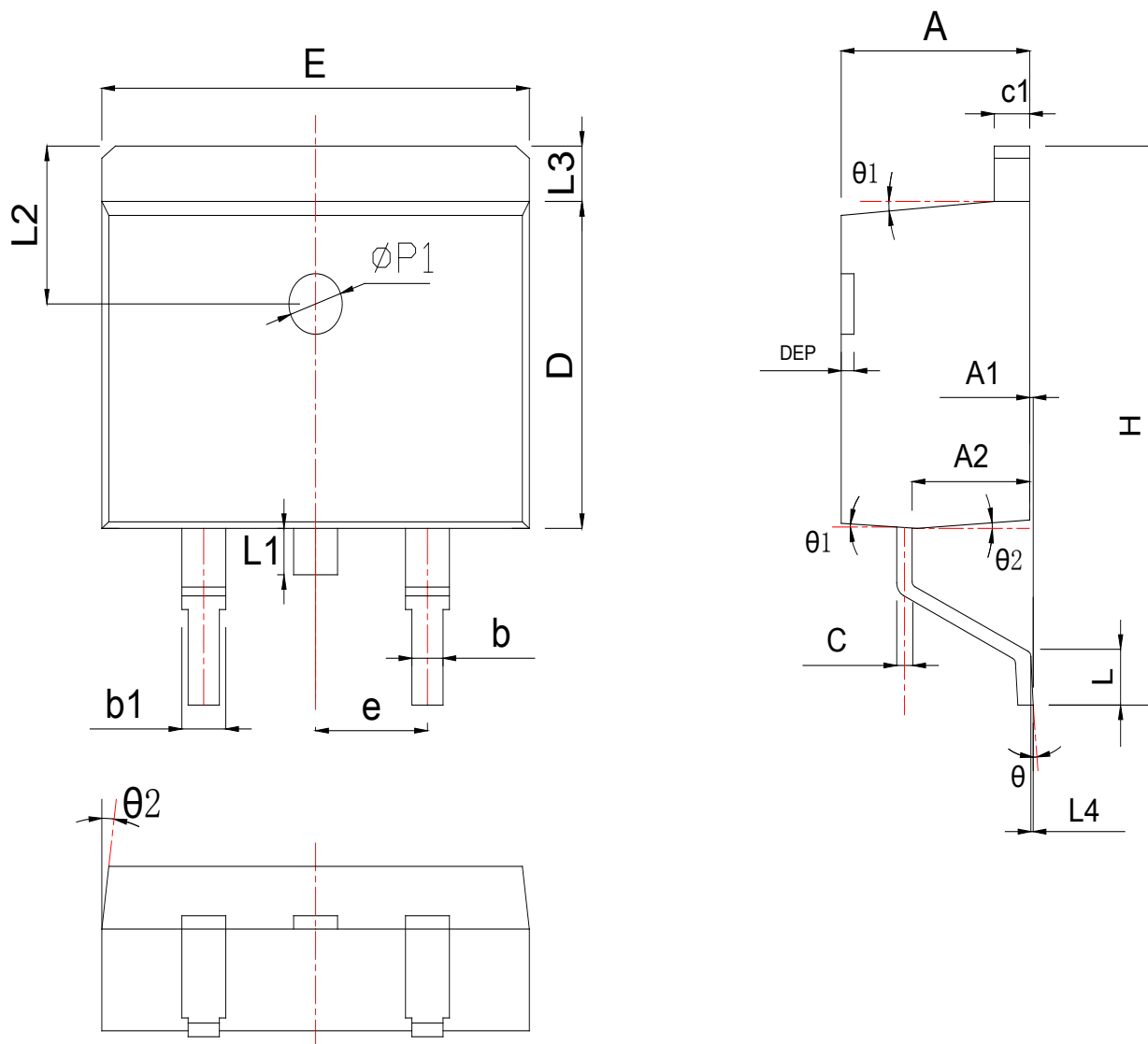


Switching Time Test Circuit and Waveforms



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	θ_1	5°	7°	9°	5°	7°	9°
D	8.60	8.70	8.80	0.339	0.343	0.346	θ_2	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			ϕ_{p1}	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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