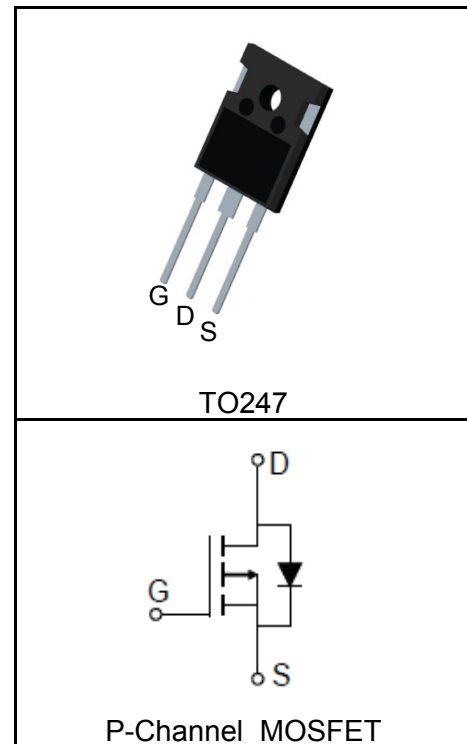


Features

- -100V/-60A,
RDS (ON) =18mΩ(Typ.)@VGS=-10V
- Low On-Resistance
- Super High Dense Cell Design
- Fast Switching and Fully Avalanche Rated
- 100% avalanche tested

Applications

- Load switch

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 -60	A
Mounted on Large Heat Sink			
I _{DP} ^①	300μs Pulse Drain Current Tested	T _C =25°C -240	A
I _D ^②	Continuous Drain Current(V _{GS} =10V)	T _C =25°C -60	A
		T _C =100°C -42	
P _D	Maximum Power Dissipation	T _C =25°C 192	W
		T _C =100°C 96	
R _{θJC}	Thermal Resistance-Junction to Case	0.78	°C/W
R _{θJA}	Thermal Resistance-Junction to Ambient	50	°C/W
Drain-Source Avalanche Ratings			
E _{AS} ^③	Avalanche Energy, Single Pulsed	400	mJ

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

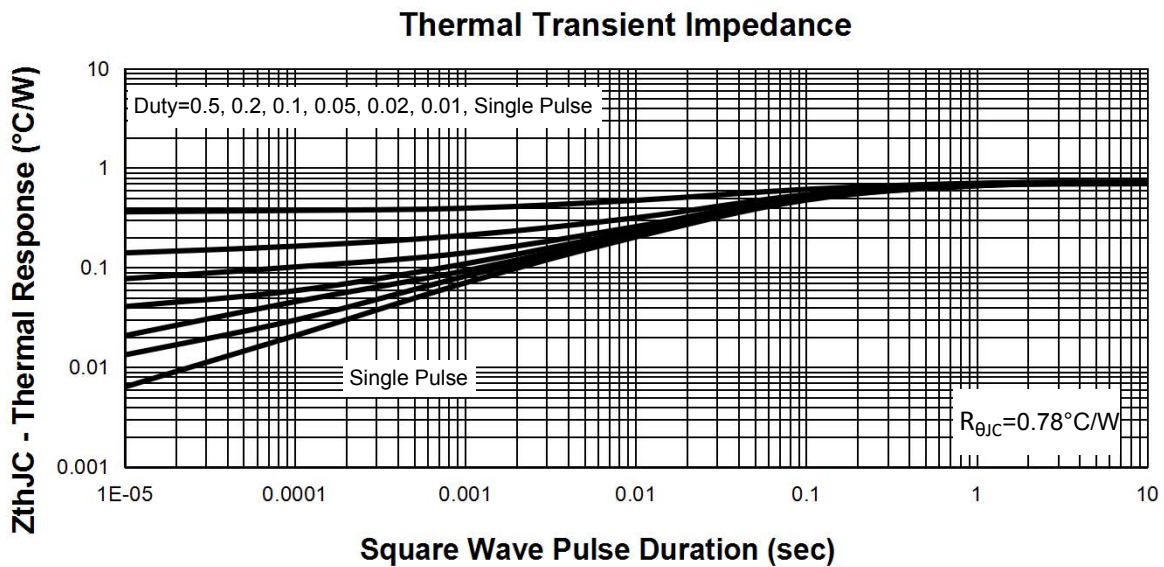
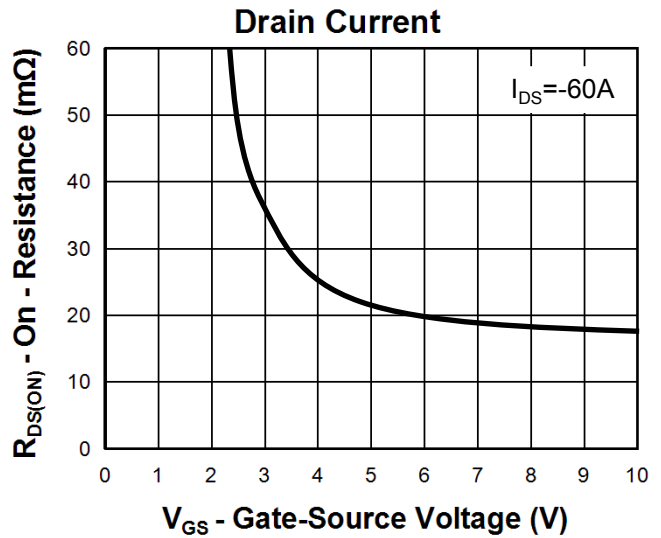
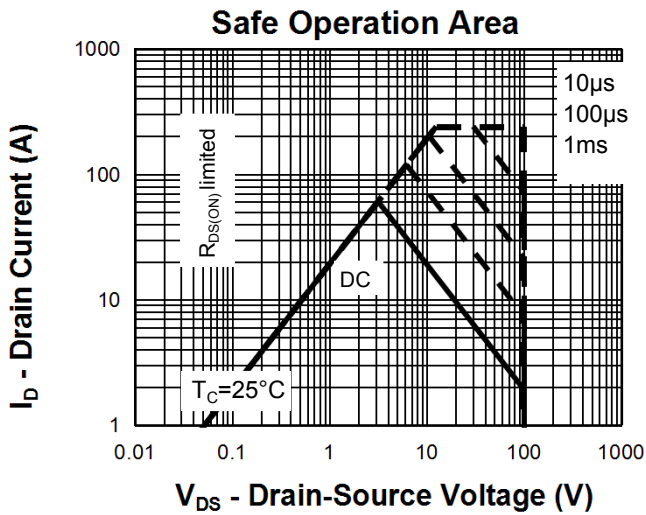
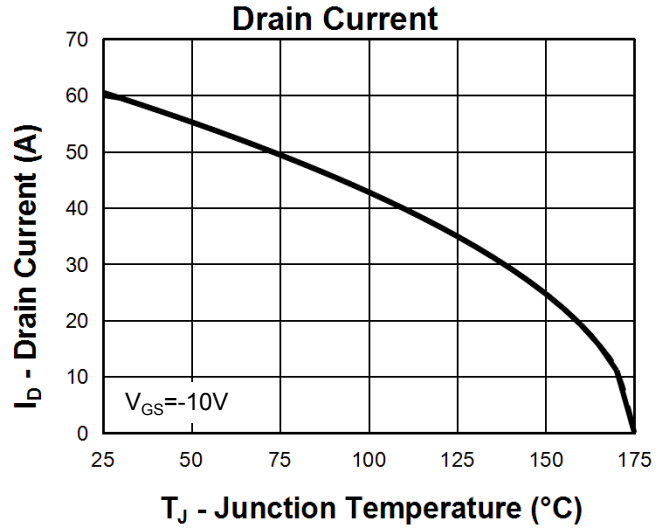
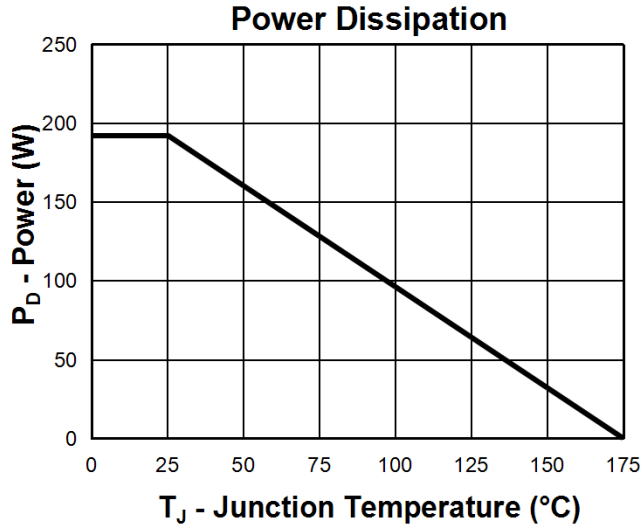
Symbol	Parameter	Test Condition	RU1HP60Q			Unit
			Min.	Typ.	Max.	
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_{DS}=-250\mu A$	-100			V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=-100V, V_{GS}=0V$			-1	μA
		$T_J=125^{\circ}\text{C}$			-30	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_{DS}=-250\mu A$	-2		-4	V
I_{GSS}	Gate Leakage Current	$V_{GS}=\pm 25V, V_{DS}=0V$			± 100	nA
$R_{DS(ON)}^{(4)}$	Drain-Source On-state Resistance	$V_{GS}=-10V, I_{DS}=-60A$		18	25	m Ω
Diode Characteristics						
$V_{SD}^{(4)}$	Diode Forward Voltage	$I_{SD}=-30A, V_{GS}=0V$			-1.5	V
t_{rr}	Reverse Recovery Time	$I_{SD}=-60A, di_{SD}/dt=100A/\mu s$		175		ns
Q_{rr}	Reverse Recovery Charge			620		nC
Dynamic Characteristics ⁽⁵⁾						
R_G	Gate Resistance	$V_{GS}=0V, V_{DS}=0V, F=1\text{MHz}$		2		Ω
C_{iss}	Input Capacitance	$V_{GS}=0V,$ $V_{DS}=-50V,$ Frequency=1.0MHz		4200		pF
C_{oss}	Output Capacitance			615		
C_{rss}	Reverse Transfer Capacitance			380		
$t_{d(ON)}$	Turn-on Delay Time	$V_{DD}=-50V, I_{DS}=-60A,$ $V_{GEN}=-10V, R_G=6\Omega$		27		ns
t_r	Turn-on Rise Time			83		
$t_{d(OFF)}$	Turn-off Delay Time			145		
t_f	Turn-off Fall Time			40		
Gate Charge Characteristics ⁽⁵⁾						
Q_g	Total Gate Charge	$V_{DS}=-80V, V_{GS}=-10V,$ $I_{DS}=-60A$		164		nC
Q_{gs}	Gate-Source Charge			34		
Q_{gd}	Gate-Drain Charge			50		

- Notes:
- ① Pulse width limited by safe operating area.
 - ② Calculated continuous current based on maximum allowable junction temperature.
 - ③ Limited by T_{Jmax} , $I_{AS}=-40A$, $V_{DD}=-60V$, $R_G=50\Omega$, 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.

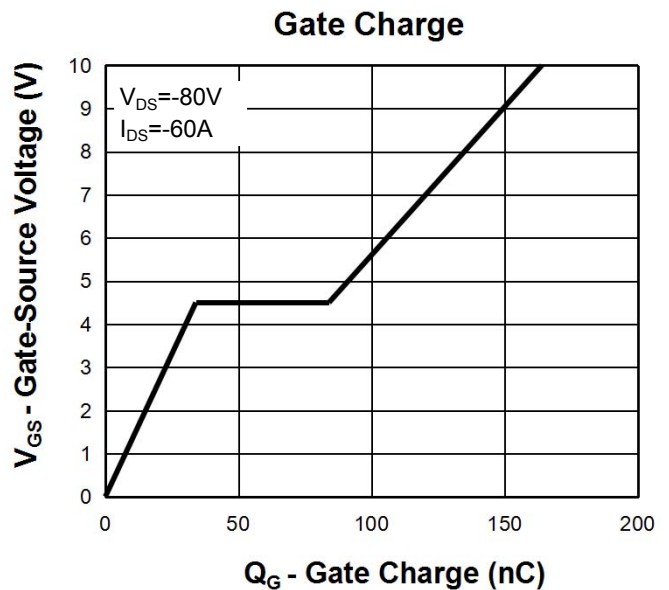
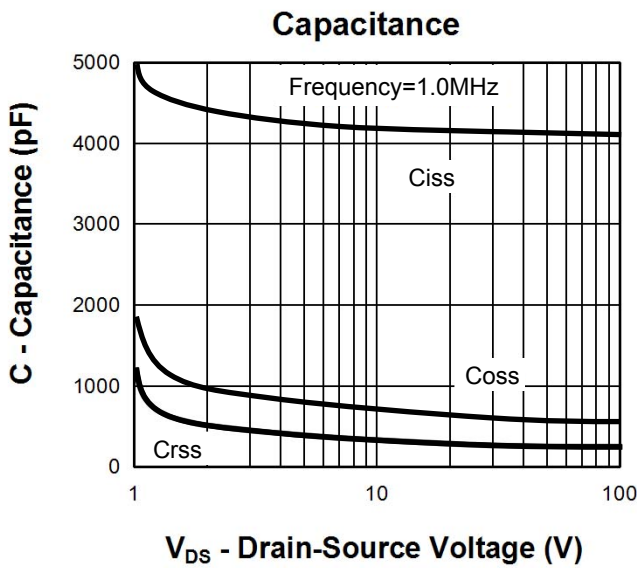
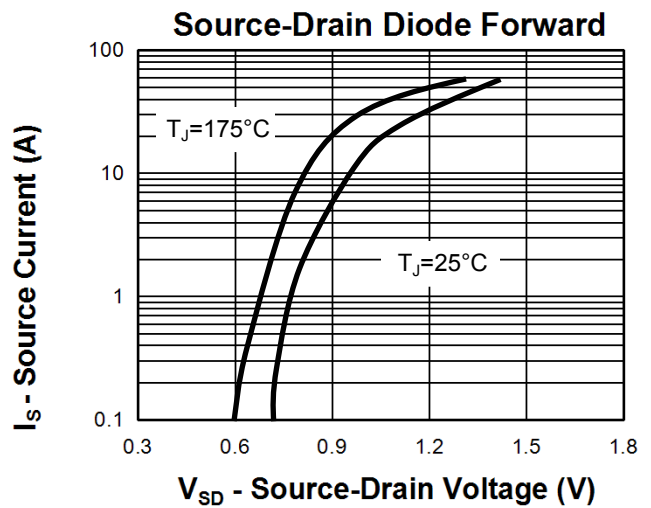
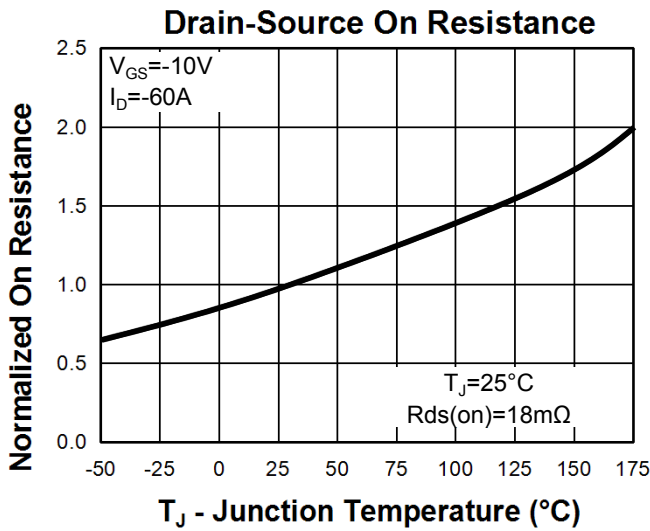
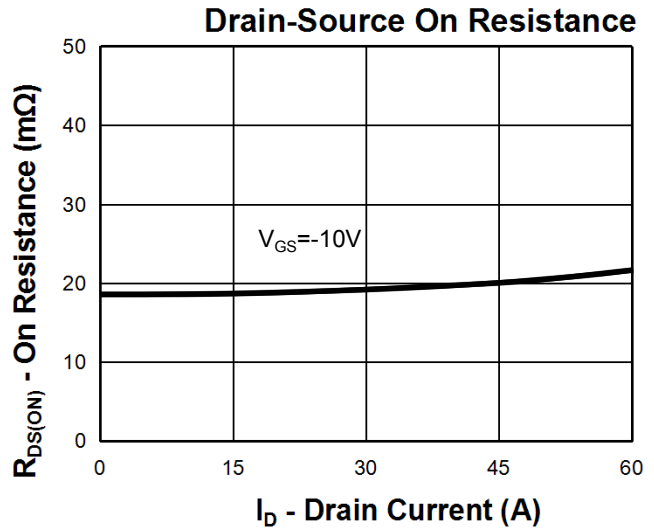
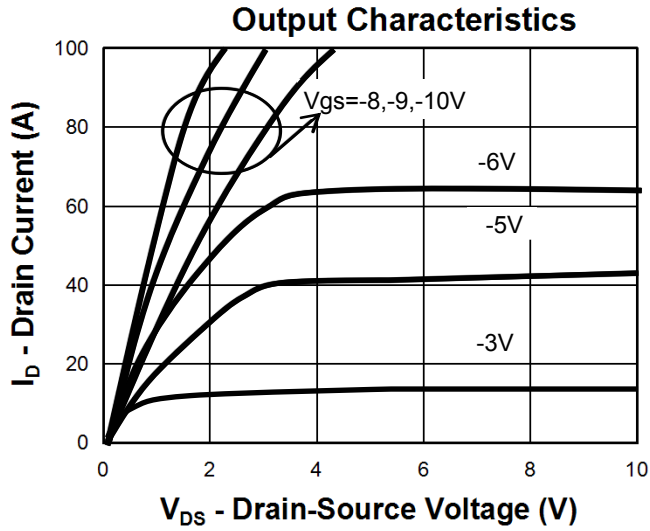
Ordering and Marking Information

Device	Marking	Package	Packaging	Quantity	Reel Size	Tape width
RU1HP60Q	RU1HP60Q	TO247	Tube	30	-	-

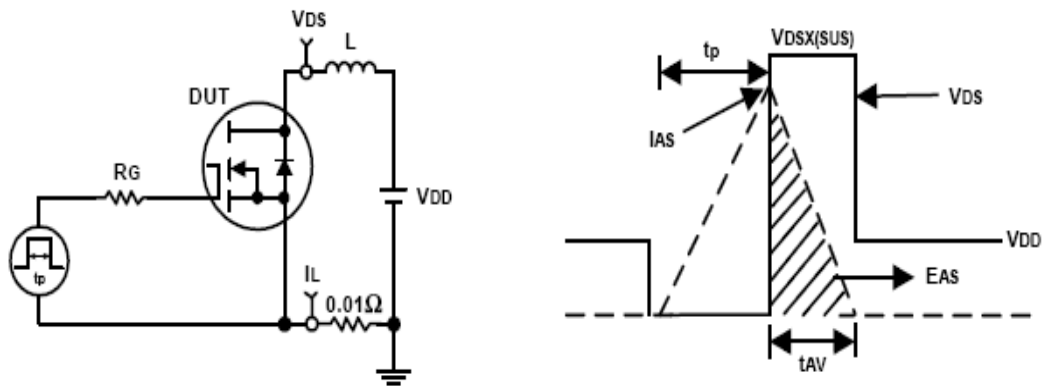
Typical Characteristics



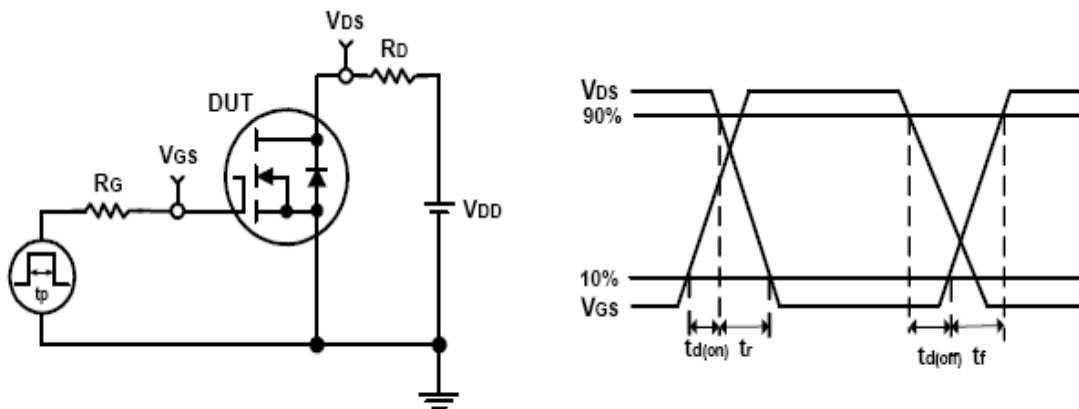
Typical Characteristics



Avalanche Test Circuit and Waveforms

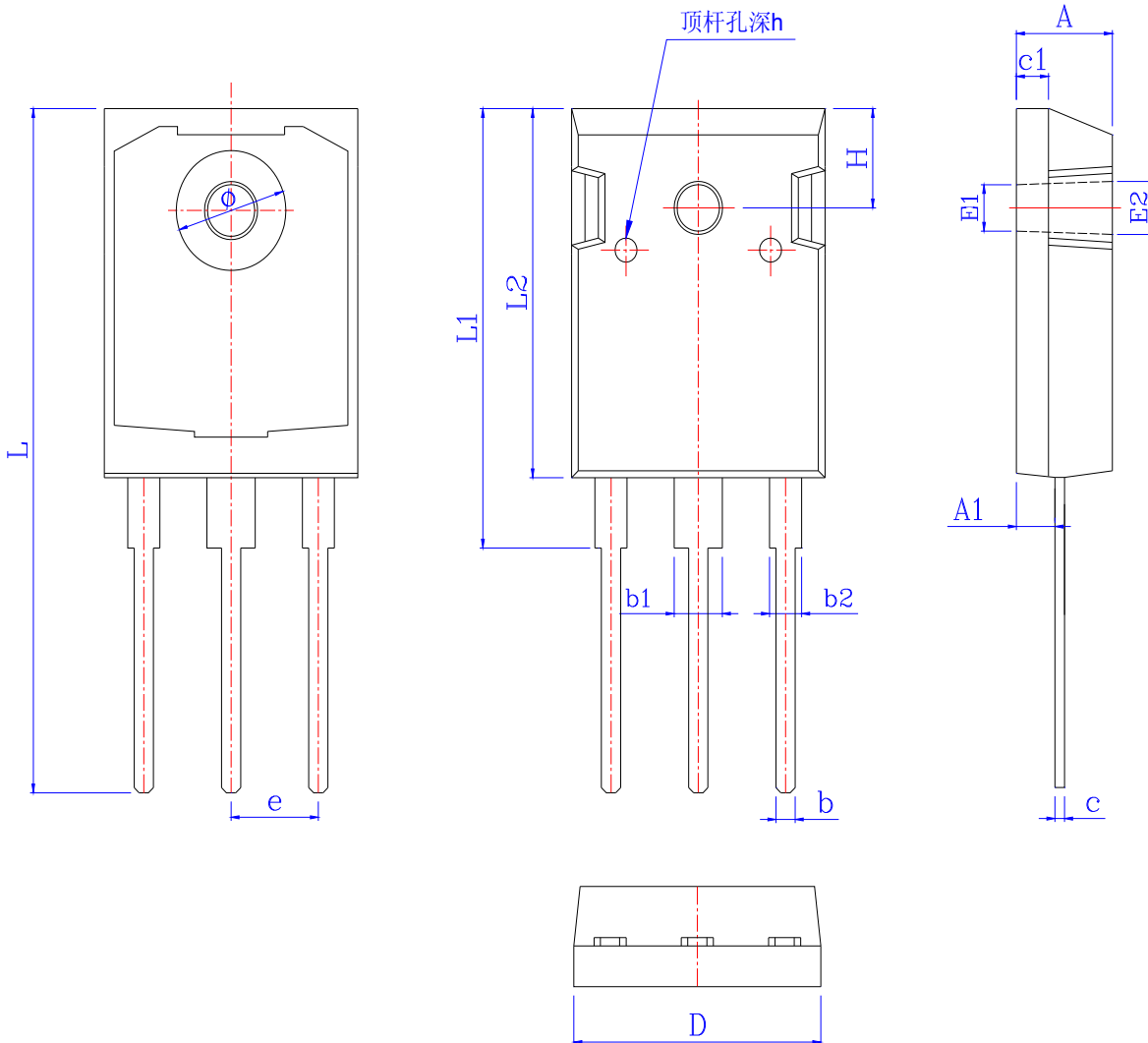


Switching Time Test Circuit and Waveforms



Package Information

TO247



SYMBOL	MM			INCH		
	MIN	NOM	MAX	MIN	NOM	MAX
A	4.850	5.000	5.150	0.191	0.197	0.203
A1	2.200	2.400	2.600	0.087	0.094	0.102
b	1.000	1.200	1.400	0.039	0.047	0.055
b1	2.800	3.000	3.200	0.110	0.118	0.126
b2	1.800	2.000	2.200	0.071	0.079	0.087
c	0.500	0.600	0.700	0.020	0.024	0.028
c1	1.900	2.000	2.100	0.075	0.079	0.083
D	15.450	15.60	15.900	0.608	0.614	0.626
E1	3.500REF			0.138REF		
E2	3.600REF			0.142REF		
L	40.900	41.100	41.300	1.610	1.618	1.626
L1	24.800	24.950	25.100	0.976	0.982	0.988
L2	20.300	20.450	21.100	0.799	0.805	0.831
Φ	7.10	7.20	7.30	0.280	0.283	0.287
e	5.450TYP			0.215TYP		
H	5.980REF			0.235REF		
h	0.000	0.150	0.300	0.000	0.006	0.012

Customer Service**Worldwide Sales and Service:**

Sales@ruichips.com

Technical Support:

Technical@ruichips.com

Investor Relations Contacts:

Investor@ruichips.com

Marcom Contact:

Marcom@ruichips.com

Editorial Contact:

Editorial@ruichips.com

HR Contact:

HR@ruichips.com

Legal Contact:

Legal@ruichips.com

ShenZhen City Ruichips Semiconductor CO.,LTD

4th Floor, Block 8, Changyuan New Material Port, Keyuan Middle Road,
Science & Industry Park, Nansha District, Shenzhen, China

TEL: (86-755) 8311-5334

FAX: (86-755) 8311-4278

E-mail: Sales-SZ@ruichips.com