

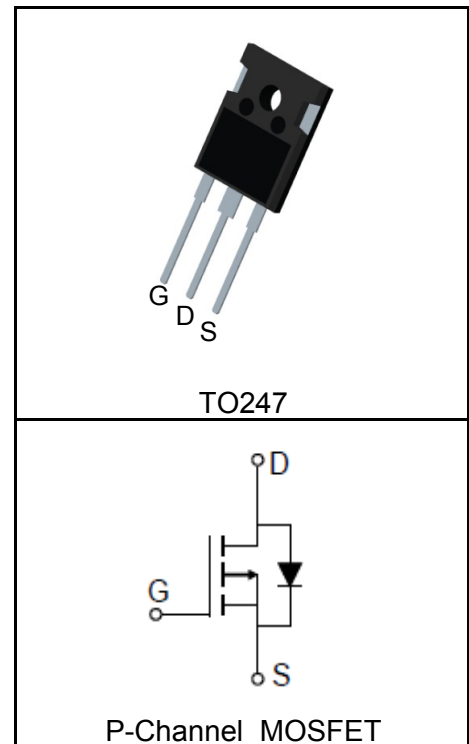
Features

- -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)

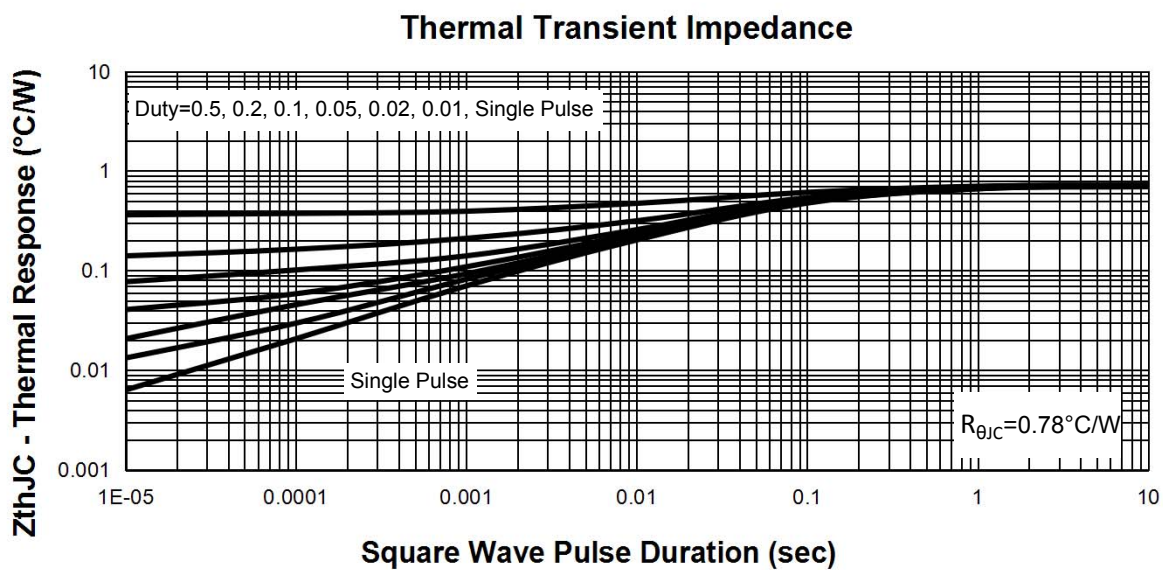
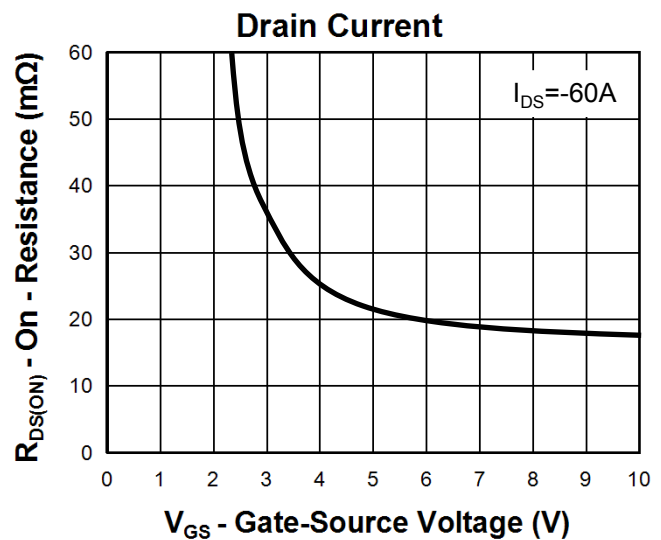
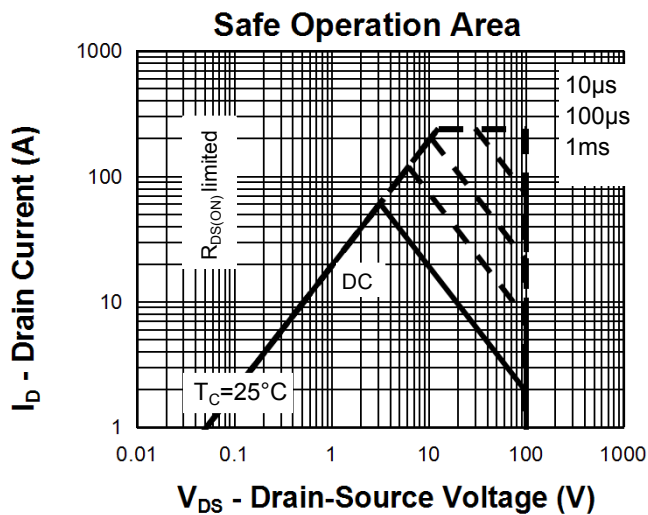
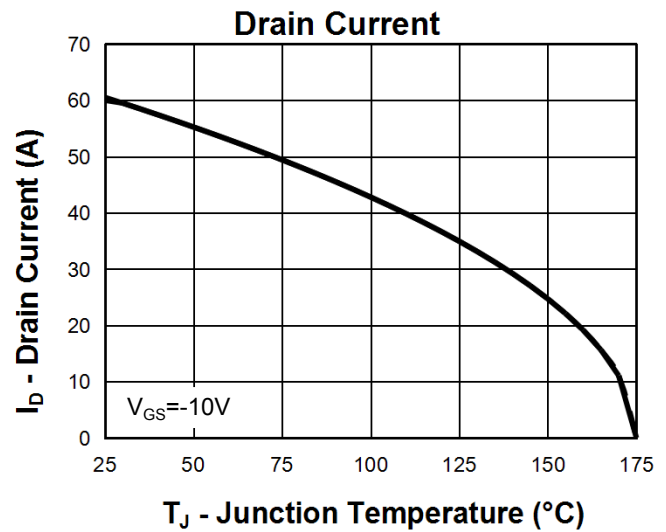
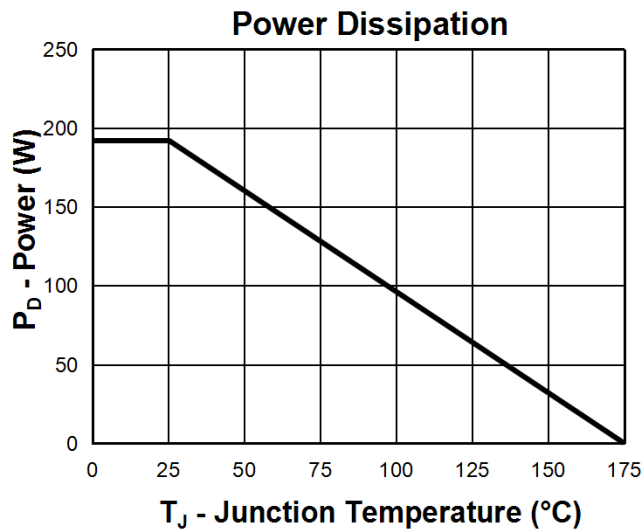
Symbol	Parameter	Test Condition	RU1HP60Q			Unit
			Min.	Typ.	Max.	
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =-250μA	-100			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-100V, V _{GS} =0V			-1	μA
			T _J =125°C			
V _{GS(th)}	Gate Threshold Voltage	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} =-60A		18	25	mΩ
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/μs		175		ns
Q _{rr}	Reverse Recovery Charge			620		nC
Dynamic Characteristics ^⑤						
R _G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz		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 =6Ω		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.

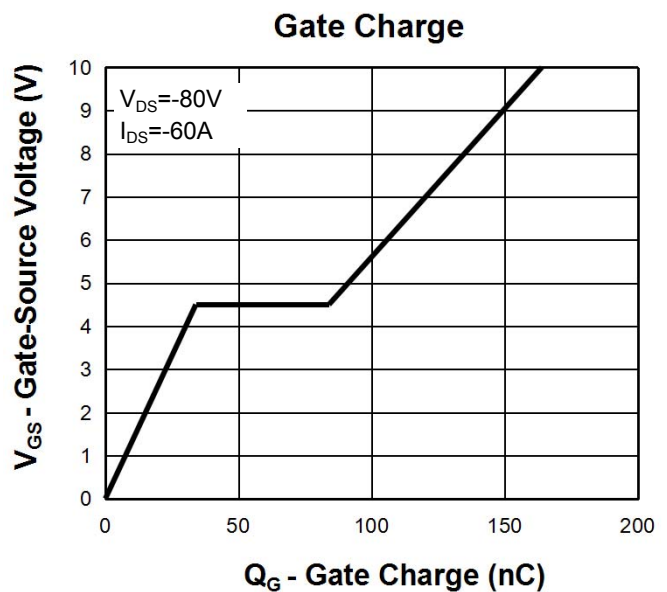
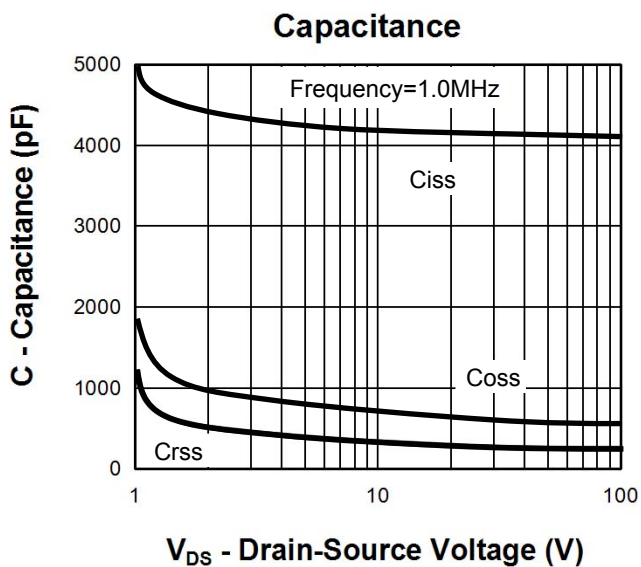
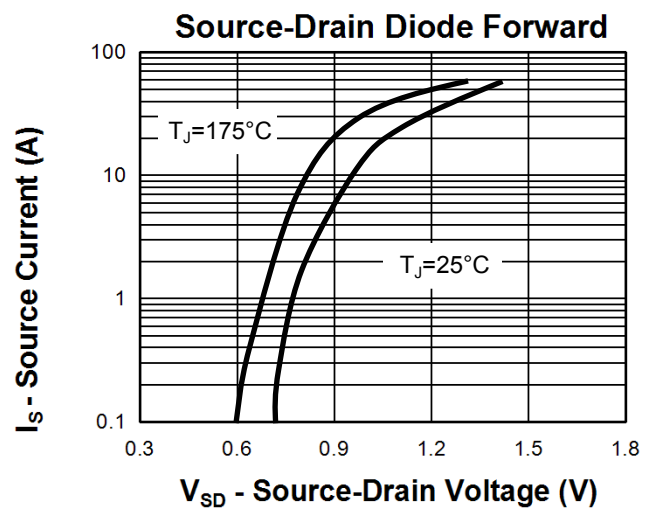
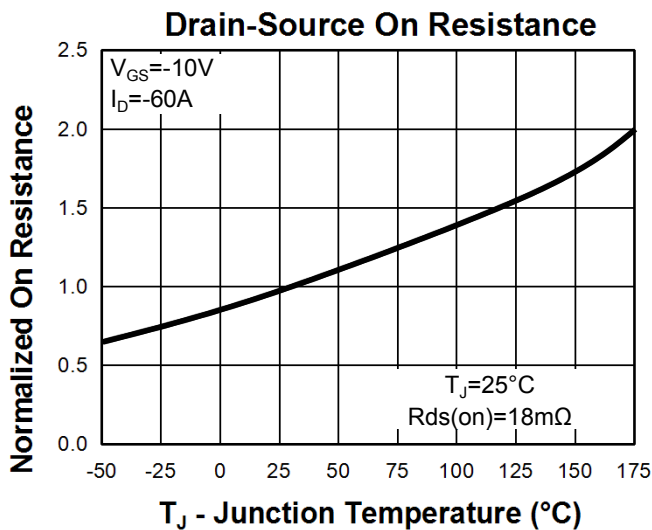
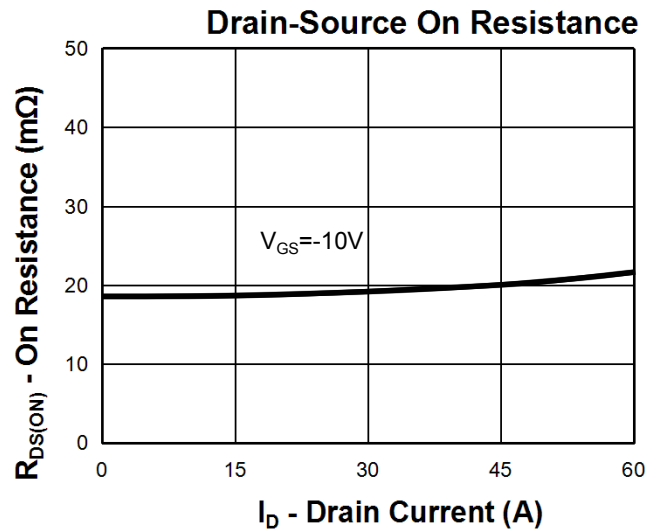
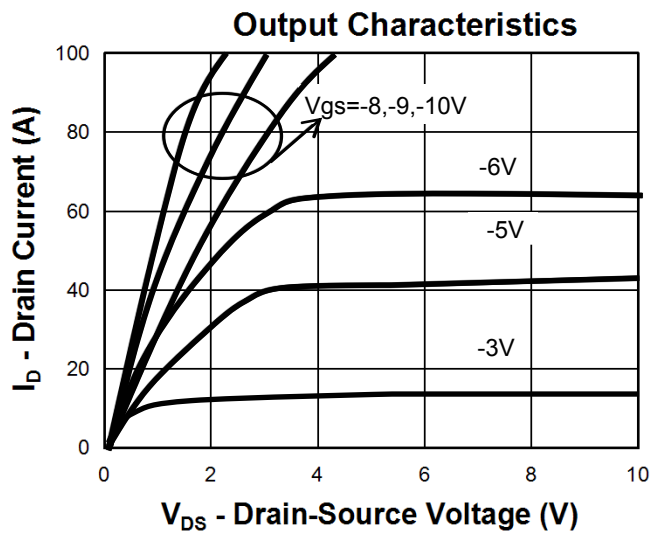
Ordering and Marking Information

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

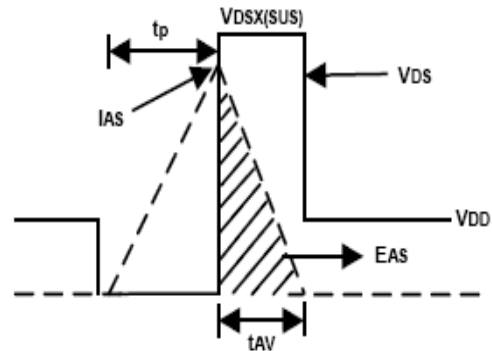
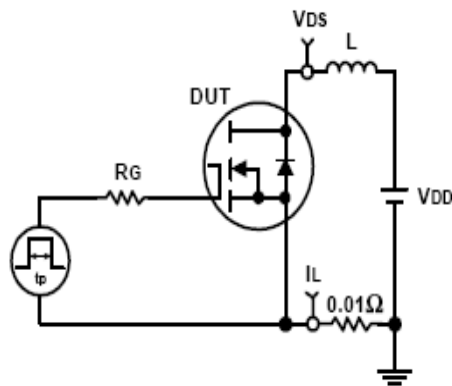
Typical Characteristics



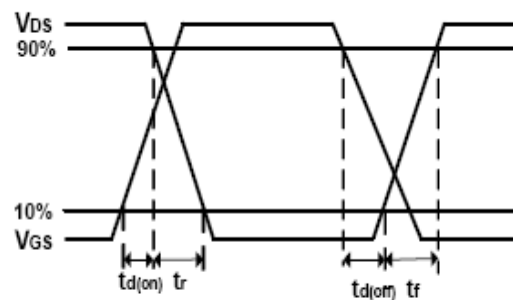
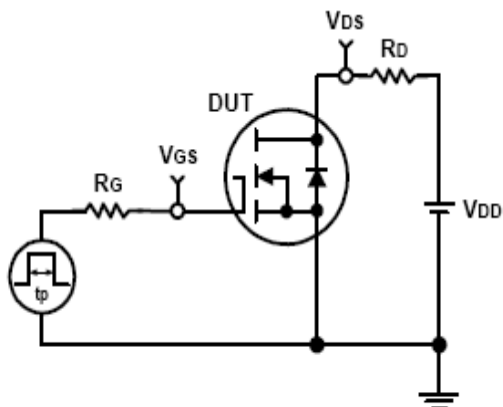
Typical Characteristics



Avalanche Test Circuit and Waveforms

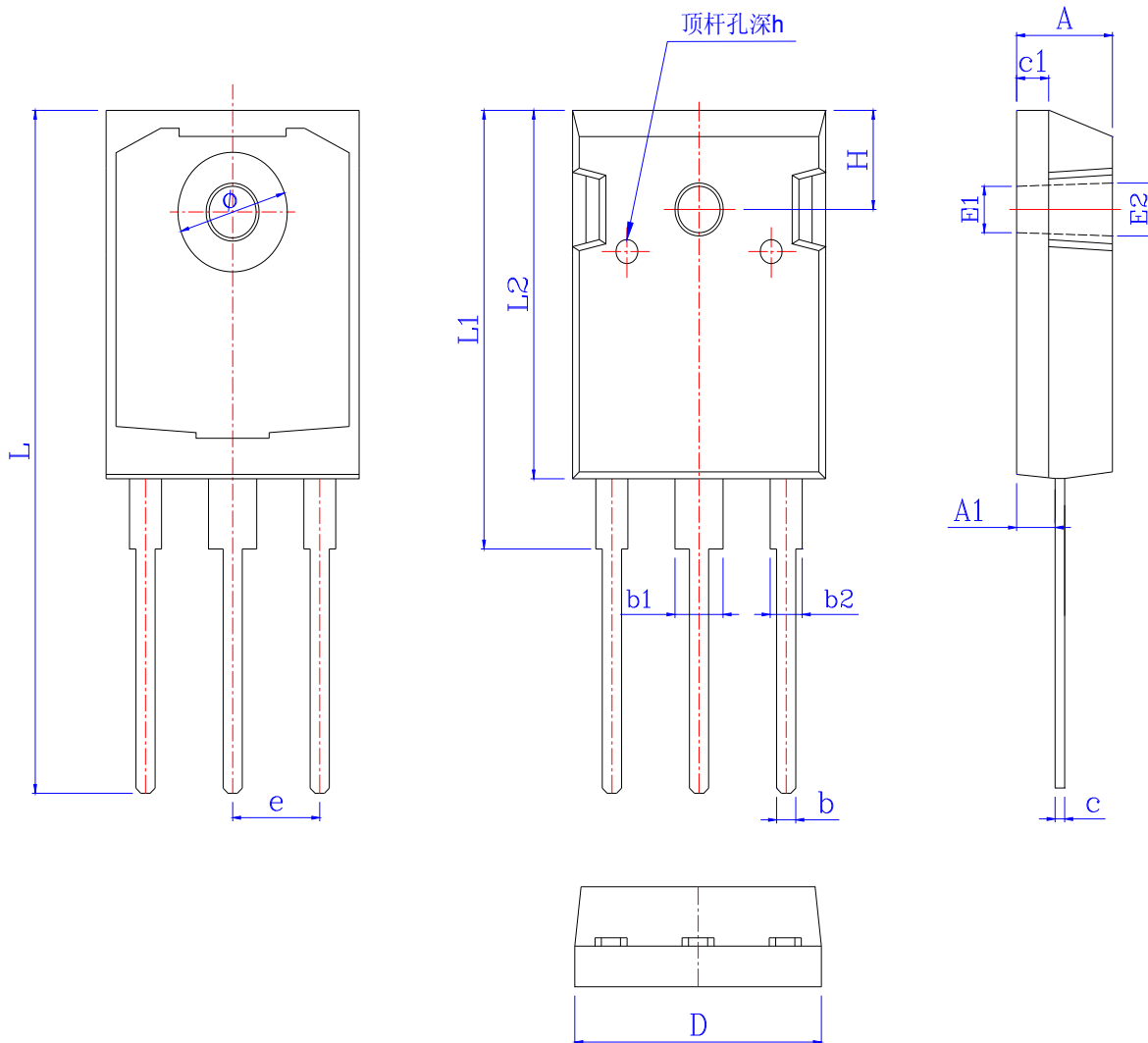


Switching Time Test Circuit and Waveforms



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

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