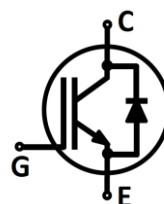
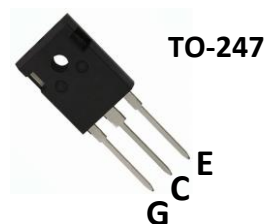


特征

高可靠性及热稳定性，良好的参数一致性
低关断损耗
饱和压降为正温度系数，易于并联使用
内置快恢复二极管

应用领域

感应加热



最大额定值¹

参数	符号	额定值	单位
集电极-发射极电压	V_{CE}	1200	V
集电极电流 $T_C=25^{\circ}\text{C}$ $T_C=100^{\circ}\text{C}$	I_C	30 15	A
集电极脉冲电流	I_{Cpuls}	45 ^{*2}	
RBSOA电流 $V_{CE}<1200\text{V}, T_J<150^{\circ}\text{C}$	I_{Cpeak}	45 [*]	
二极管正向电流 $T_C=25^{\circ}\text{C}$ $T_C=100^{\circ}\text{C}$	I_F	30 ³ 15	
二极管脉冲电流	I_{Fpuls}	45 [*]	
栅极-发射极电压	V_{GE}	± 20	V
耗散功率 $T_C=25^{\circ}\text{C}$ $T_C=100^{\circ}\text{C}$	P_{tot}	208 83	W
工作结温	T_J	-55~150	
储存温度	T_{stg}	-55~150	$^{\circ}\text{C}$

¹测试标准参考JESD-022

²加*表示估计值，下同

³受限于邦定线

热学特性

参数	符号	封装形式	最小值	典型值	最大值	单位
IGBT结壳热阻	R_{thJC}	TO-247	-	-	0.42	°C/W
二极管结壳热阻	R_{thJD}	TO-247	-	-	1.2	
结-环境热阻	R_{thJA}	TO-247	-	-	40	

电学特性 (未特殊说明时, $T_j=25^{\circ}\text{C}$)

参数	符号	测试条件	最小值	典型值	最大值	单位
静态特性						
击穿电压	$V_{(BR)CES}$	$V_{GE}=0V, I_C=0.5mA$	1200	-	-	V
IGBT导通压降	$V_{CE(sat)}$	$V_{GE}=15V, I_C=15A$ $T_j=25^{\circ}\text{C}$	-	2.1	2.5	
		$T_j=150^{\circ}\text{C}$	-	2.3	-	
二极管正向压降	V_F	$V_{GE}=0V, I_F=15A$ $T_j=25^{\circ}\text{C}$	-	1.20	-	
		$T_j=150^{\circ}\text{C}$	-	1.15	-	
阈值电压	$V_{GE(th)}$	$I_C=0.4mA, V_{CE}=V_{GE}$	5.0	6.0	7.0	mA
集电极-发射极漏电流	I_{CES}	$V_{CE}=1200V, V_{GE}=0V$ $T_j=25^{\circ}\text{C}$	-	-	0.1	
		$T_j=150^{\circ}\text{C}$	-	-	2.0	
栅极-发射极漏电流	I_{GES}	$V_{CE}=0V, V_{GE}=20V$	-	-	100	nA
跨导	g_{FS}	$V_{CE}=20V, I_C=15A$	-	8.5	-	S
动态特性						
输入电容	C_{iss}	$V_{CE}=25V$ $V_{GE}=0V$ $f=1MHz$	-	2750	-	pF
输出电容	C_{oss}		-	85	-	
反馈电容	C_{rss}		-	48	-	
栅电荷	Q_G	$V_{CC}=900V, I_C=15A, V_{GE}=15V$	-	tbd	-	nC

参数	符号	测试条件	最小值	典型值	最大值	单位
IGBT开关特性 （感性负载）						
开通延迟时间	$t_{d(on)}$	$T_j=25^{\circ}\text{C}$ $V_{CC}=600\text{V}, I_C=15\text{A}$ $V_{GE}=15/0\text{V}$ $R_G=15\Omega$ $L_{load}=500\mu\text{H}$	-	25	-	ns
上升时间	t_r		-	48	-	
关断延迟时间	$t_{d(off)}$		-	155	-	
下降时间	t_f		-	115	-	
开通损耗	E_{on}		-	0.67	-	mJ
关断损耗	E_{off}		-	0.45	-	
开关损耗	E_{ts}		-	1.12	-	
开通延迟时间	$t_{d(on)}$	$T_j=150^{\circ}\text{C}$ $V_{CC}=600\text{V}, I_C=15\text{A}$ $V_{GE}=15/0\text{V}$ $R_G=15\Omega$ $L_{load}=500\mu\text{H}$	-	23	-	ns
上升时间	t_r		-	46	-	
关断延迟时间	$t_{d(off)}$		-	182	-	
下降时间	t_f		-	240	-	
开通损耗	E_{on}		-	0.75	-	mJ
关断损耗	E_{off}		-	0.92	-	
开关损耗	E_{ts}		-	1.67	-	

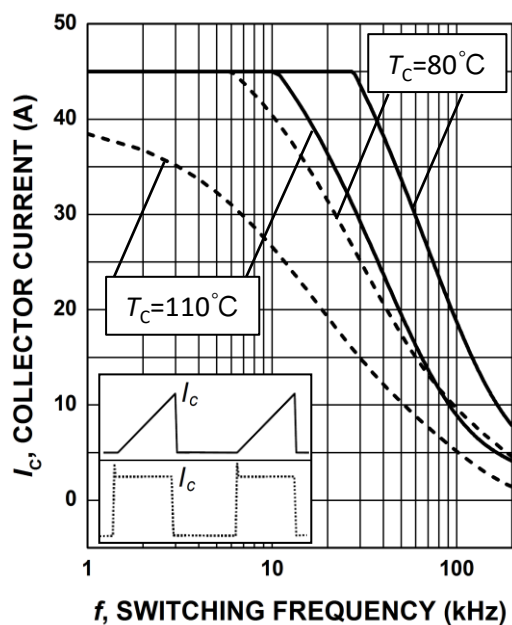


Figure 1. Collector current as a function of switching frequency

($T_j \leq 150^\circ\text{C}$, $D = 0.5$, $V_{CE} = 600\text{V}$,
 $V_{GE} = 0/+15\text{V}$, $R_G = 15\Omega$)

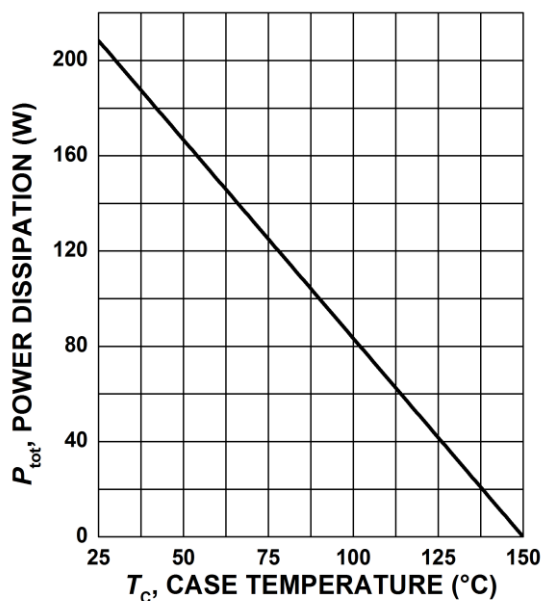


Figure 2. Maximum power dissipation as a function of case temperature

($T_j \leq 150^\circ\text{C}$)

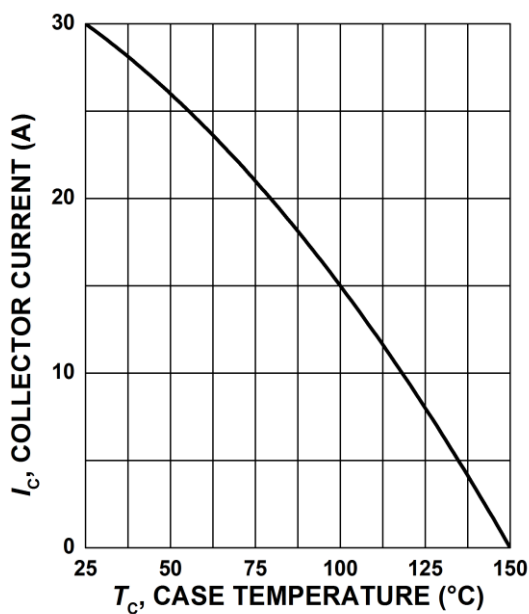


Figure 3. Maximum collector current as a function of case temperature

($V_{GE} \geq 15\text{V}$, $T_j \leq 150^\circ\text{C}$)

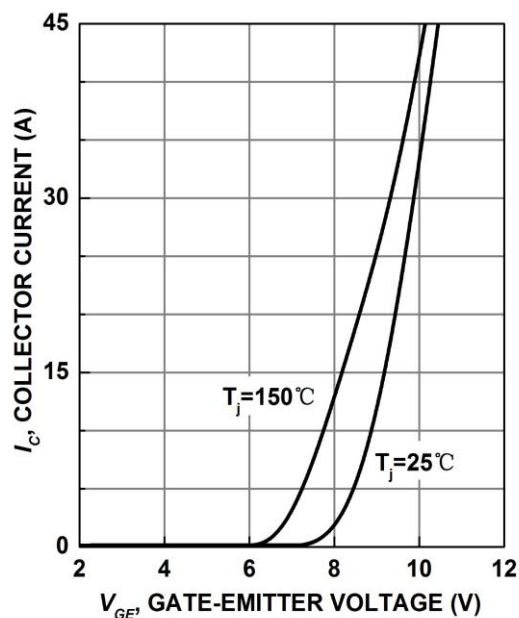


Figure 4. Typical transfer characteristic

($V_{CE} = 15\text{V}$)

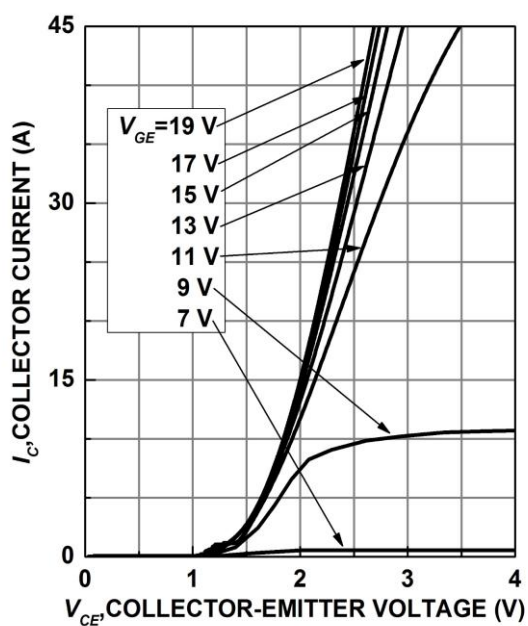


Figure 5. Typical output characteristic
($T_j = 25^\circ\text{C}$)

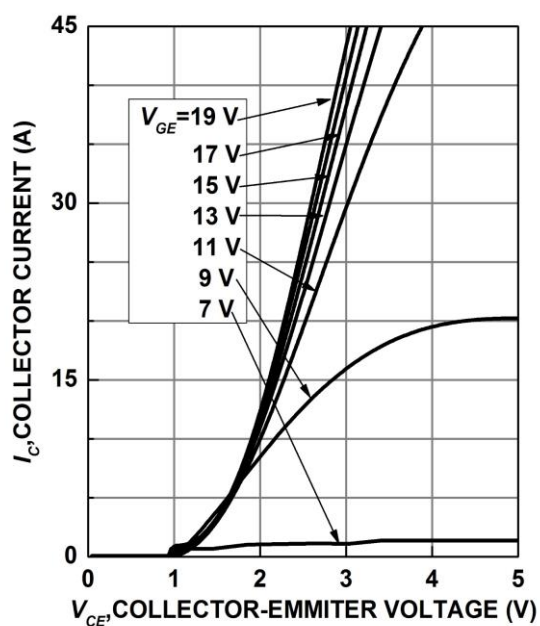


Figure 6. Typical output characteristic
($T_j = 150^\circ\text{C}$)

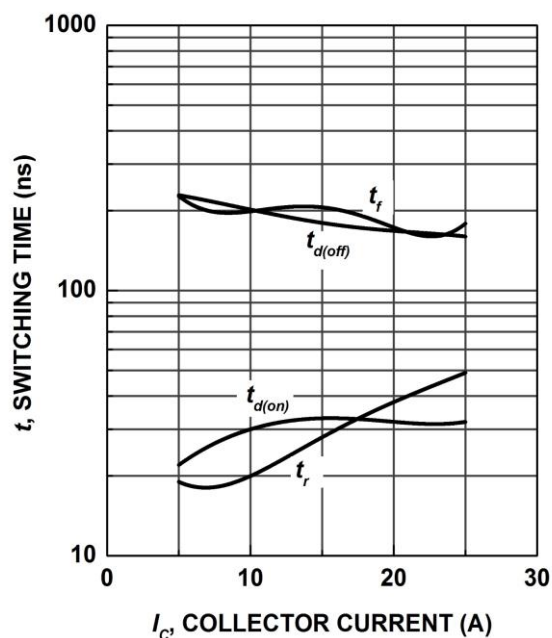


Figure 7. Typical switching times as a function of collector current
(inductive load, $T_j=150^\circ\text{C}$, $V_{CE}=600\text{V}$, $V_{GE}=0/15\text{V}$, $R_G=15\Omega$, Dynamic test circuit in Figure D)

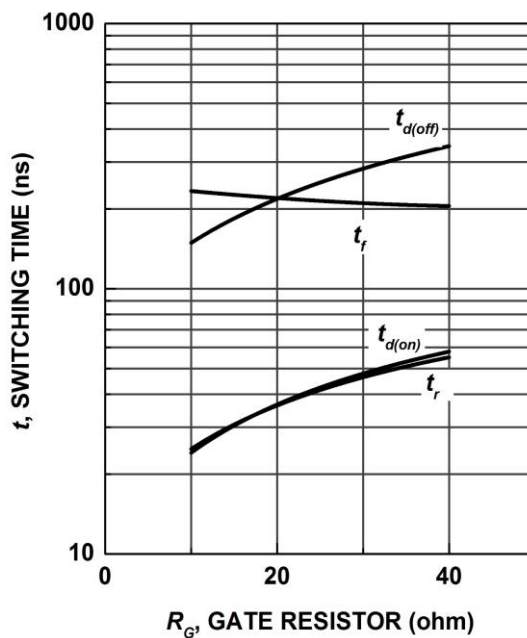


Figure 8. Typical switching times as a function of gate resistor
(inductive load, $T_j=150^\circ\text{C}$, $V_{CE}=600\text{V}$, $V_{GE}=0/15\text{V}$, $I_C=15\text{A}$, Dynamic test circuit in Figure D)

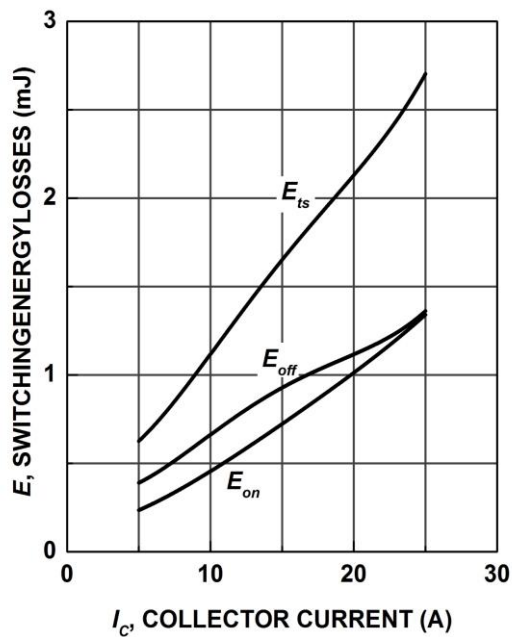


Figure 9. Typical switching energy losses as a function of collector current
(inductive load, $T_j=150^\circ\text{C}$, $V_{CE}=600\text{V}$,
 $V_{GE}=0/15\text{V}$, $R_G=15\Omega$,
Dynamic test circuit in Figure D)

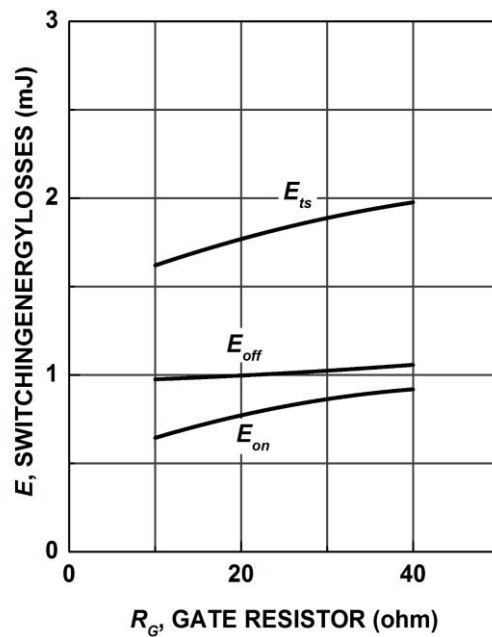


Figure 10. Typical switching energy losses as a function of gate resistor
(inductive load, $T_j=150^\circ\text{C}$, $V_{CE}=600\text{V}$,
 $V_{GE}=0/15\text{V}$, $I_C=15\text{A}$,
Dynamic test circuit in Figure D)

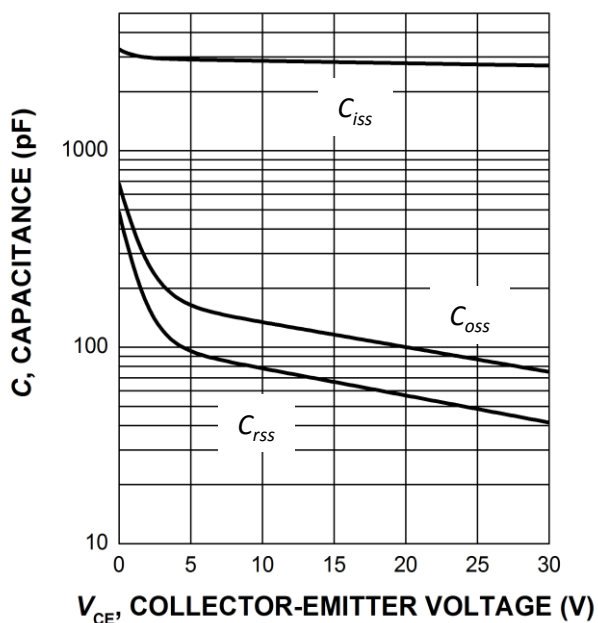


Figure 11. Typical capacitance as a function of collector-emitter voltage
($V_{GE}=0\text{V}$, $f = 1\text{ MHz}$)

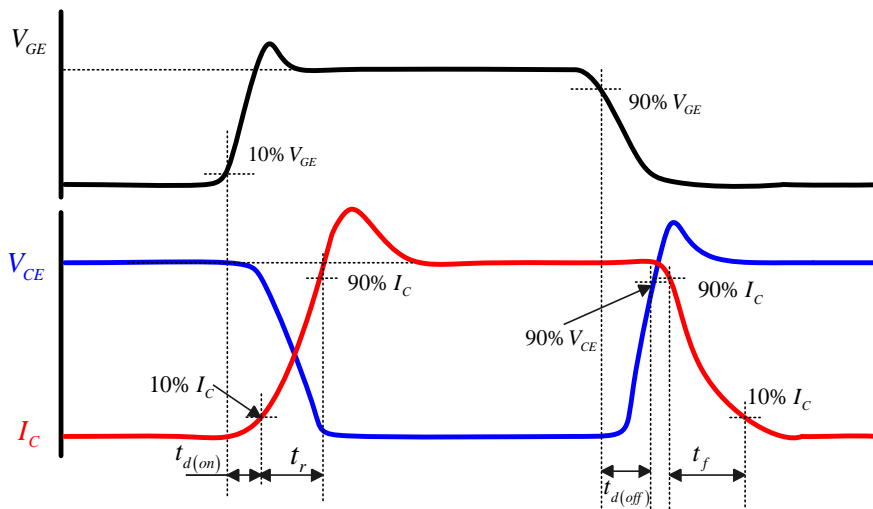


Figure A. Definition of switching times

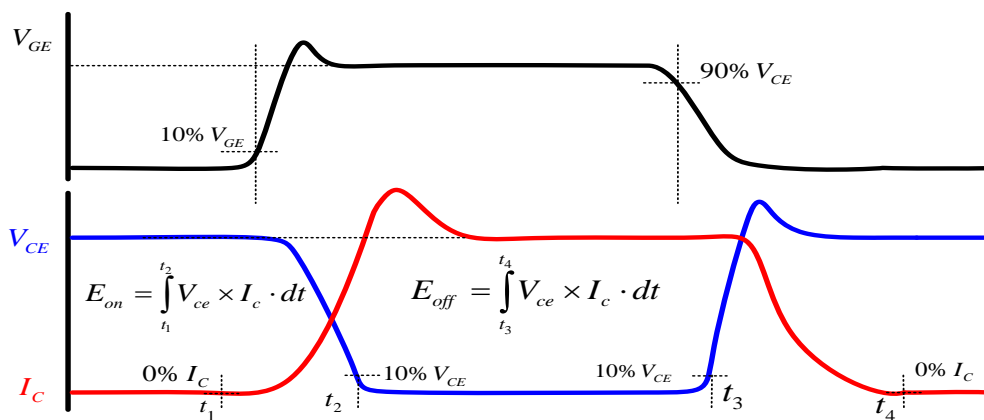


Figure B. Definition of switching losses

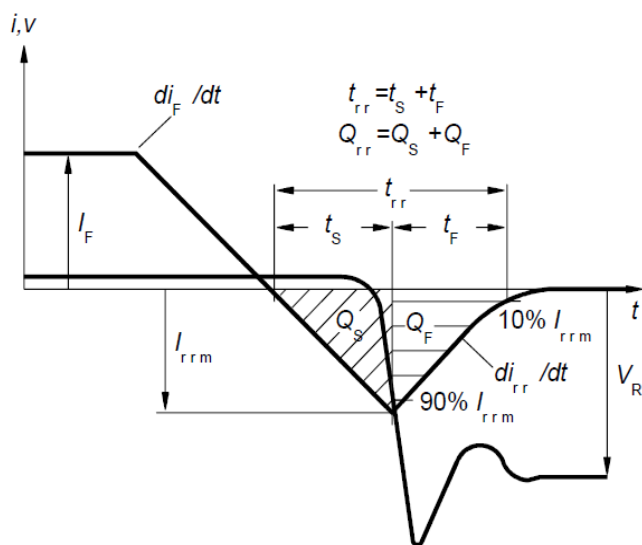


Figure C. Definition of diodes switching characteristics

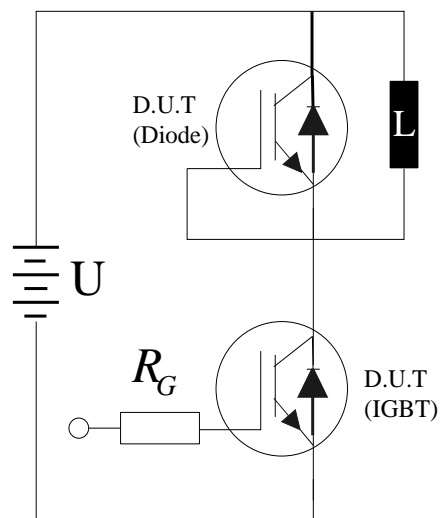
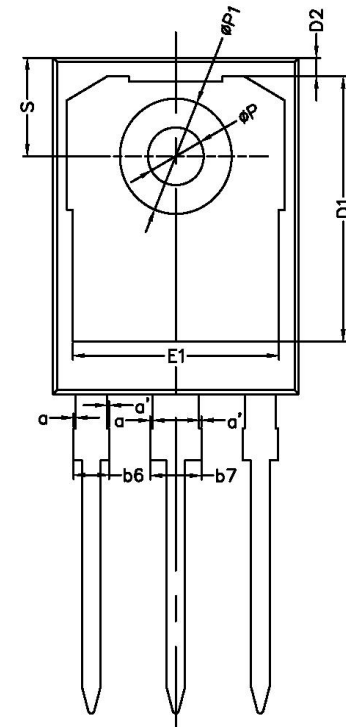
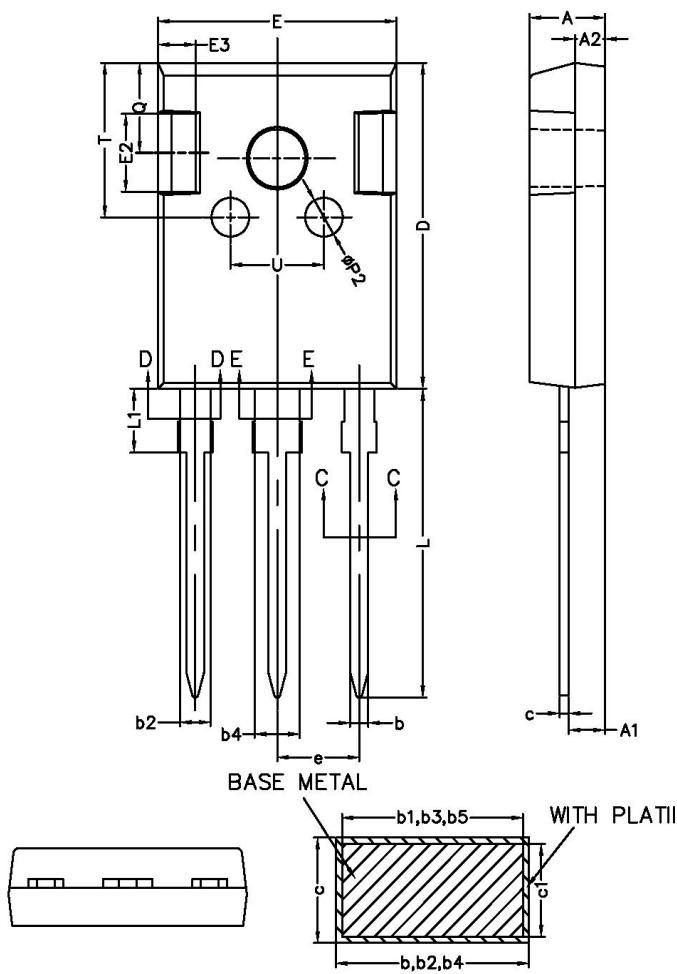


Figure D. Dynamic test circuit

TO-247



COMMON DIMENSIONS
(UNITS OF MEASURE=MILLIMETER)

SYMBOL	MIN	NOM	MAX
A	4.90	5.00	5.10
A1	2.31	2.41	2.51
A2	1.90	2.00	2.10
a	0	—	0.15
a'	0	—	0.15
b	1.16	—	1.26
b1	1.15	1.2	1.22
b2	1.96	—	2.06
b3	1.95	2.00	2.02
b4	2.96	—	3.06
b5	2.95	3.00	3.02
b6	—	—	2.25
b7	—	—	3.25
c	0.59	—	0.66
c1	0.58	0.60	0.62
D	20.90	21.00	21.10
D1	16.25	16.55	16.85
D2	1.05	1.20	1.35
E	15.70	15.80	15.90
E1	13.10	13.30	13.50
E2	4.90	5.00	5.10
E3	2.40	2.50	2.60
e	5.34	5.44	5.54
L	19.80	19.92	20.10
L1	—	—	4.30
P	3.50	3.60	3.70
P1	—	—	7.40
P2	2.40	2.50	2.60
Q	5.60	—	6.00
S	6.05	6.15	6.25
T	9.80	—	10.20
U	6.00	—	6.40

NOTES:
1. ALL DIMENSIONS REFER TO JEDEC STANDARD
TO-247 AD DO NOT INCLUDE MOLD FLASH
OR PROTRUSIONS.
2. EJECTION MARK DEPTH $0.10^{+0.15}_{-0.08}$.