

## General Description

The Sanrise SRC65R075BS is a high voltage power MOSFET, fabricated using advanced super junction technology. The resulting device has extremely low on resistance, low gate charge and fast switching time, making it especially suitable for applications which require superior power density and outstanding efficiency.

The SRC65R075BS break down voltage is 650V and it has a high rugged avalanche characteristics.

The SRC65R075BS is available in TO-263-2 , TO-220F, TO-220C and TO-247 packages.

## Features

- Ultra Low  $R_{DS(ON)} = 75m\Omega @ V_{GS} = 10V$ .
- $V_{ds}@T_{jmax}=700v$
- Ultra Low Gate Charge,  $Q_g=133nC$  typ.
- Fast switching capability
- Robust design with better EAS performance
- EMI Improved
- Non-automotive Qualified
- Ultra-fast body diode

## Application

- Telecom Power
- EV Charger

## Ordering Information

	SRC65R075BS□□-□			
Circuit Type				E: Lead Free
Package				G: Green
T: TO-247				Blank: Tube
S2: TO-263-2				TR: Tape & Reel
TF: TO-220F				
TC: TO-220C				

## Symbol

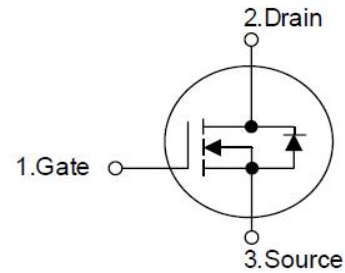


Figure 1 Symbol of SRC65R075BS

## Package Type

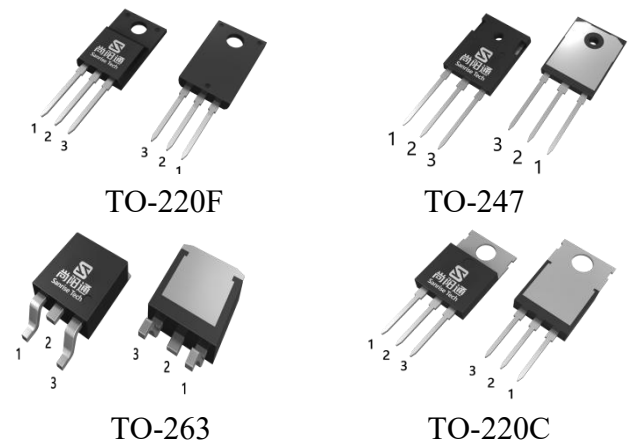


Figure 2 Package Types of SRC65R075BS

Package	Part Number	Marking ID	Packing Type
TO-247	SRC65R075BST-G	SRC65R075BSTG	Tube
TO-220F	SRC65R075BSTF-G	SRC65R075BSTFG	Tube
TO-263-2	SRC65R075BSS2TR-G	SRC65R075BSS2G	Tape & Reel
TO-220C	SRC65R075BSTC-G	SRC65R075BSTCG	Tube

**Absolute Maximum Ratings**<sup>Note 1</sup>

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		$V_{DSS}$	650	V
Gate-Source Voltage (static)		$V_{GSS}$	±20	V
Gate-Source Voltage (dynamic), AC ( $f > 1$ Hz)		$V_{GSS}$	±30	V
Continuous Drain Current	$T_C = 25^\circ\text{C}$	$I_D$	44	A
	$T_C = 100^\circ\text{C}$		27	
	$T_C = 125^\circ\text{C}$		19	
Power Dissipation ( $T_C = 25^\circ\text{C}, \text{TO-220F}$ )		$P_{tot}$	34	W
Power Dissipation ( $T_C = 25^\circ\text{C}, \text{TO-247}, \text{TO-220C}, \text{TO-263}$ )		$P_{tot}$	328	W
Pulsed Drain Current (Note 2)		$I_{DM}$	132	A
Avalanche Energy, Single Pulse (Note 3)		$E_{AS}$	320	mJ
Avalanche Energy, Single Pulse (Note 4)		$E_{AS}$	1500	mJ
Avalanche Energy, Repetitive (Note 2)		$E_{AR}$	0.2	mJ
Avalanche Current, Repetitive (Note 2)		$I_{AR}$	4.0	A
Continuous Diode Forward Current		$I_S$	44	A
Diode Pulse Current		$I_{S,PULSE}$	132	A
MOSFET $dv/dt$ Ruggedness, $V_{DS} \leq 480\text{V}$		$dv/dt$	120	V/ns
Reverse Diode $dv/dt$ , $V_{DS} \leq 480\text{V}$ , $I_{SD} \leq I_D$		$dv/dt$	50	V/ns
Operating Junction Temperature		$T_J$	150	$^\circ\text{C}$
Storage Temperature		$T_{STG}$	-55 to 150	$^\circ\text{C}$
Lead Temperature (Soldering, 10 sec)		$T_{LEAD}$	260	$^\circ\text{C}$

Note:

- Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.
- Repetitive Rating: Pulse width limited by maximum junction temperature
- $I_{AS} = 4.0\text{A}$ ,  $V_{DD} = 60\text{V}$ ,  $R_G = 25\Omega$ , Starting  $T_J = 25^\circ\text{C}$ . Finish goods test condition
- $I_{AS} = 8.7\text{A}$ ,  $V_{DD} = 60\text{V}$ ,  $R_G = 25\Omega$ , Starting  $T_J = 25^\circ\text{C}$ . Typical Eas

**Thermal characteristics**

Parameter		Symbol	Min	Typ	Max	Unit
Thermal resistance, Junction-to-Case	TO-220F	$R_{thJC}$			3.6	$^\circ\text{C}/\text{W}$
	TO-220C				0.38	
	TO-247				0.38	
	TO-263				0.38	
Thermal resistance, Junction-to-Ambient	TO-220F	$R_{thJA}$			70	$^\circ\text{C}/\text{W}$
	TO-220C				59	
	TO-247				59	
	TO-263				59	

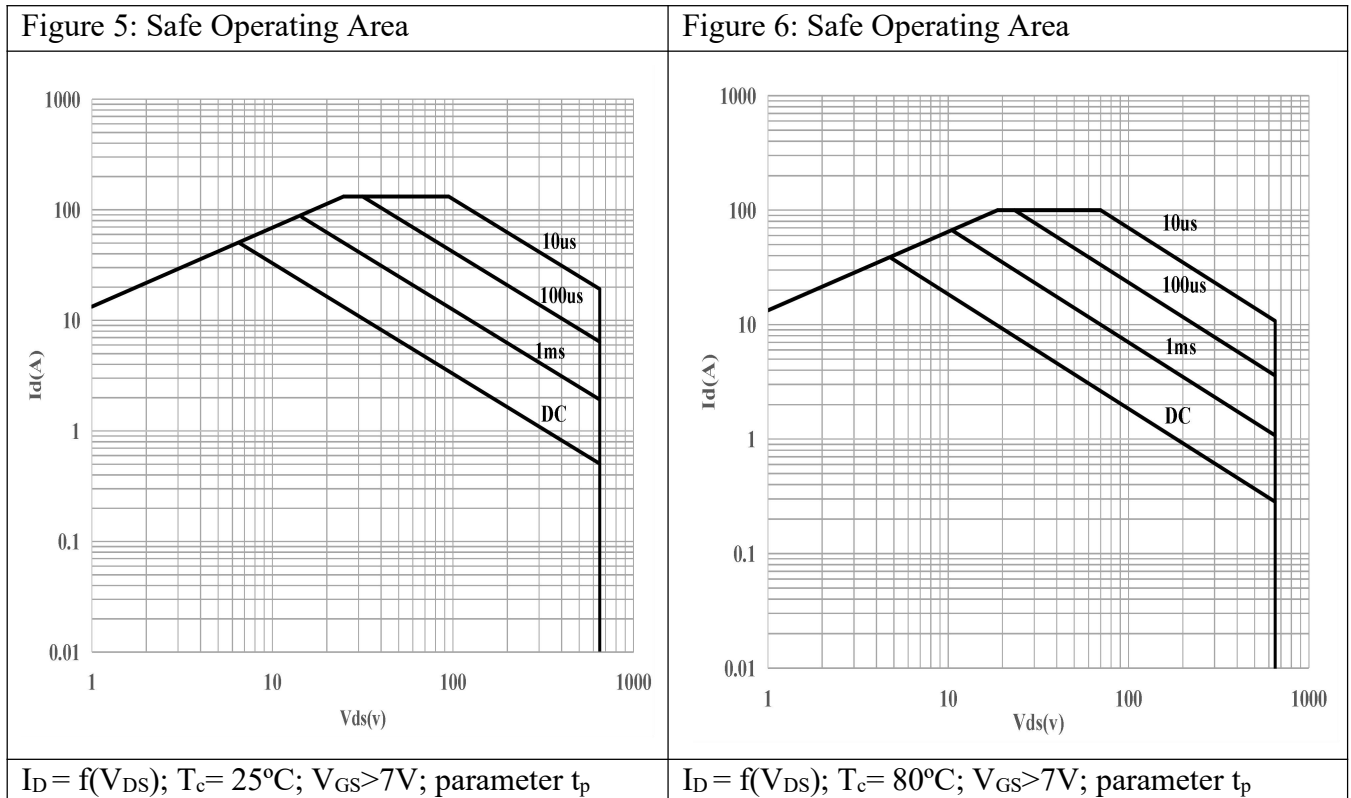
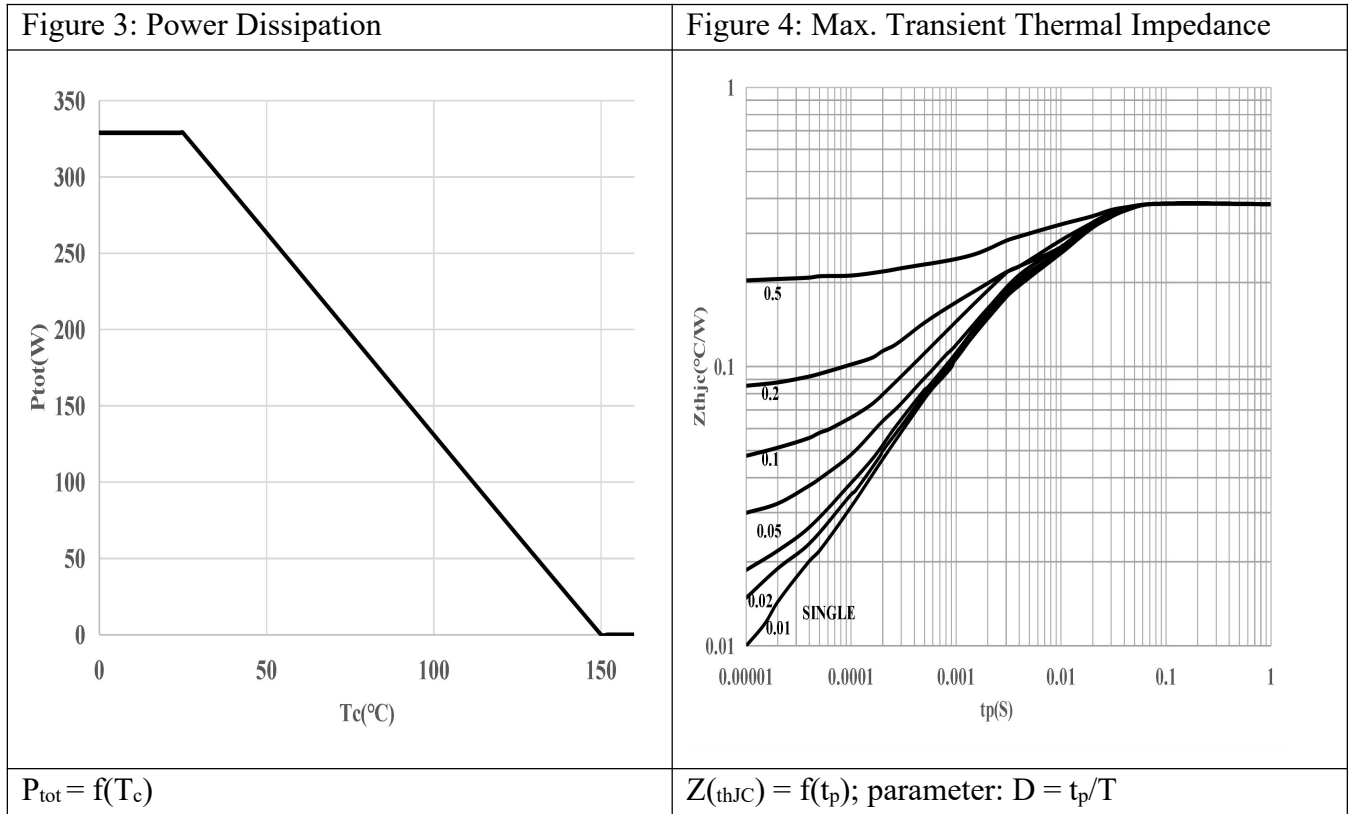
**Electrical Characteristics**

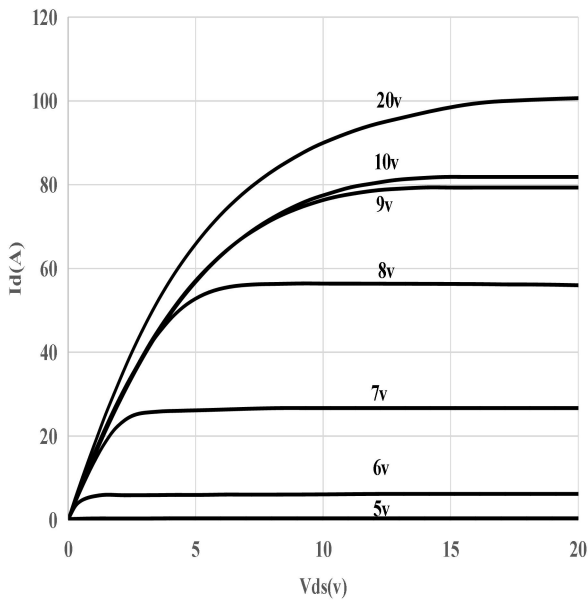
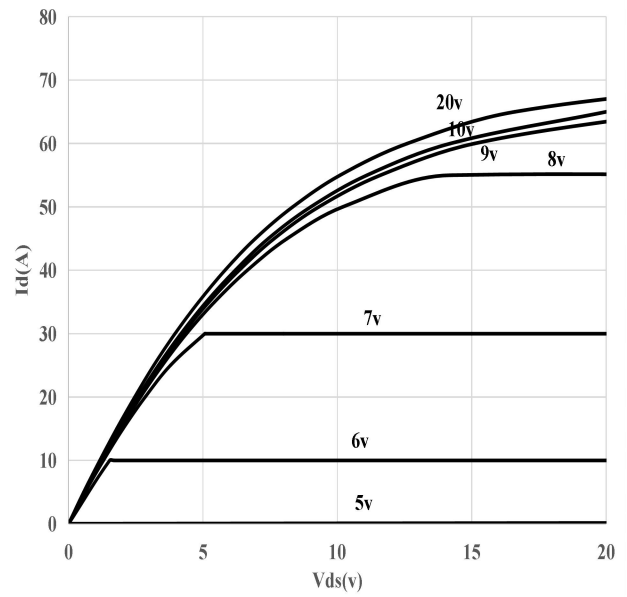
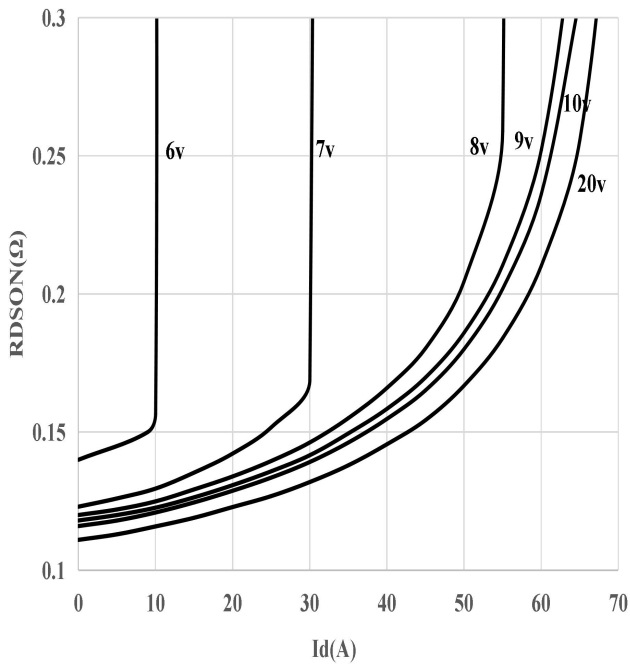
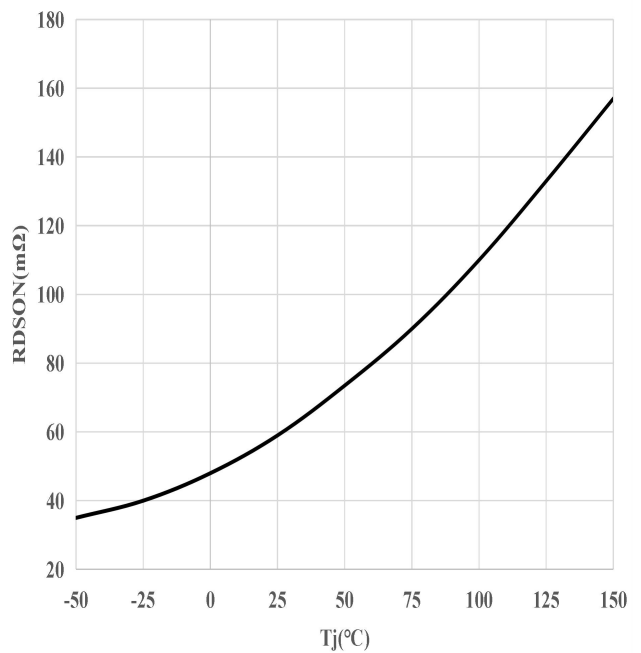
 T<sub>J</sub> = 25 °C, unless otherwise specified.

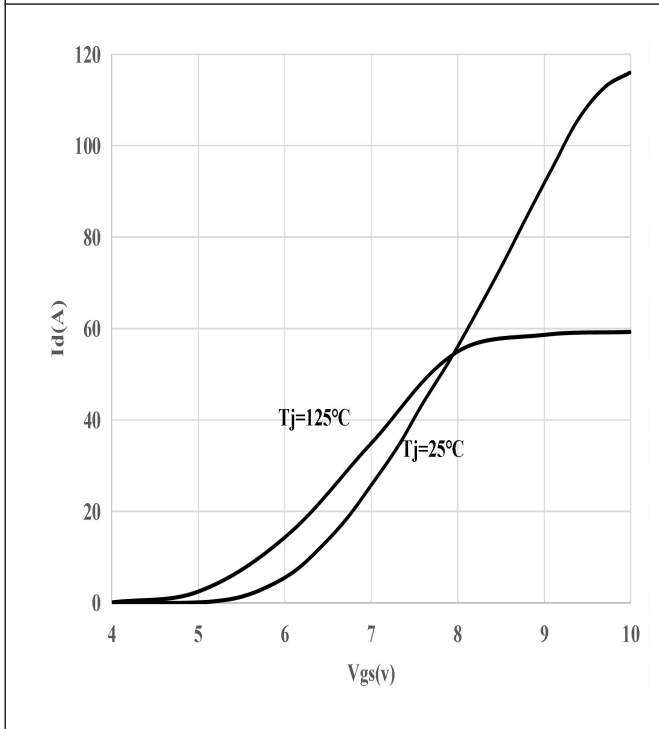
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>Statistic Characteristics</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =250uA	650			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =650V, V <sub>GS</sub> =0V			10	uA
Gate-Body Leakage Current	Forward	I <sub>GSSF</sub>	V <sub>GS</sub> =20V, V <sub>DS</sub> =0V		100	nA
	Reverse	I <sub>GSSR</sub>	V <sub>GS</sub> =-20V, V <sub>DS</sub> =0V		-100	
Gate Threshold Voltage	V <sub>GS(TH)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =1.0mA	3.5	4.5	5.5	V
Static Drain-Source On-Resistance	R <sub>DS(ON)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =24A		60	75	mΩ
Gate Resistance	R <sub>G</sub>	f=1MHz, Open Drain		2.0		Ω
<b>Dynamic Characteristics</b>						
Input Capacitance	C <sub>ISS</sub>	V <sub>DS</sub> =400V, V <sub>GS</sub> =0V, f=100kHz		2792		pF
Output Capacitance	C <sub>OSS</sub>			78		pF
Effective output capacitance, energy related <sup>NOTE5</sup>	C <sub>O(er)</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =0...480V		110		pF
Effective output capacitance, time related <sup>NOTE6</sup>	C <sub>O(tr)</sub>			751		
Turn-on Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> =400V, I <sub>D</sub> =24A R <sub>G</sub> =3Ω, V <sub>GS</sub> =12V		50		ns
Rise Time	t <sub>r</sub>			16		
Turn-off Delay Time	t <sub>d(off)</sub>			69		
Fall Time	t <sub>f</sub>			10		
<b>Gate Charge Characteristics</b>						
Gate to Source Charge	Q <sub>gs</sub>	V <sub>DD</sub> =480V, I <sub>D</sub> =24A V <sub>GS</sub> =0 to 10V		24		nC
Gate to Drain Charge	Q <sub>gd</sub>			85		
Gate Charge Total	Q <sub>g</sub>			133		
Gate Plateau Voltage	V <sub>plateau</sub>			7.0		V
<b>Reverse Diode Characteristics</b>						
Drain-Source Diode Forward Voltage	V <sub>SD</sub>	V <sub>GS</sub> =0V, I <sub>SD</sub> =24A		0.86	1.1	V
Reverse Recovery Time	t <sub>rr</sub>	V <sub>R</sub> =400V, I <sub>F</sub> =24A dI <sub>F</sub> /dt=120A/us		190		ns
Reverse Recovery Charge	Q <sub>rr</sub>			1.9		uC
Peak Reverse Recovery Current	I <sub>rrm</sub>			18		A

Note:

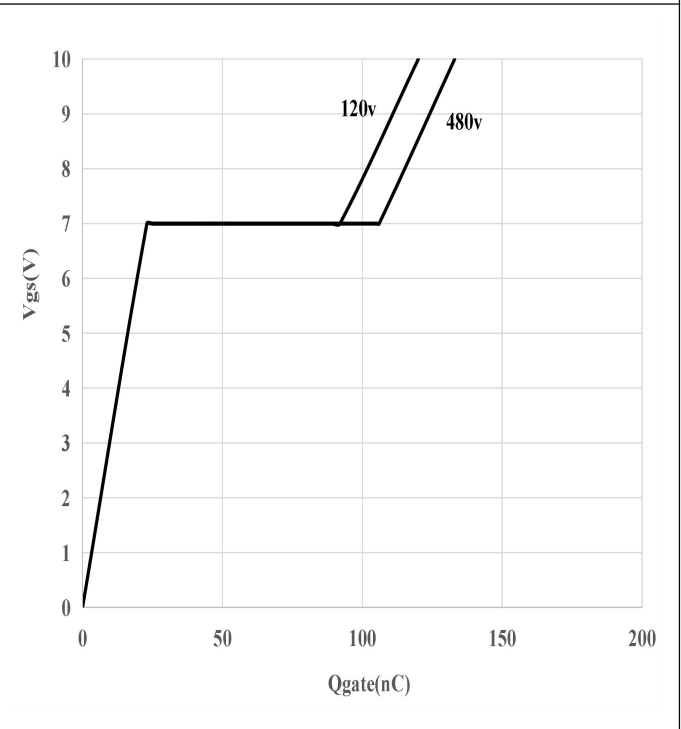
- C<sub>O(er)</sub> is a fixed capacitance that gives the same stored energy as C<sub>OSS</sub> while V<sub>DS</sub> is rising from 0 to 480V
- C<sub>O(tr)</sub> is a fixed capacitance that gives the same charging time as C<sub>OSS</sub> while V<sub>DS</sub> is rising from 0 to 480 V

**Typical Performance Characteristics**


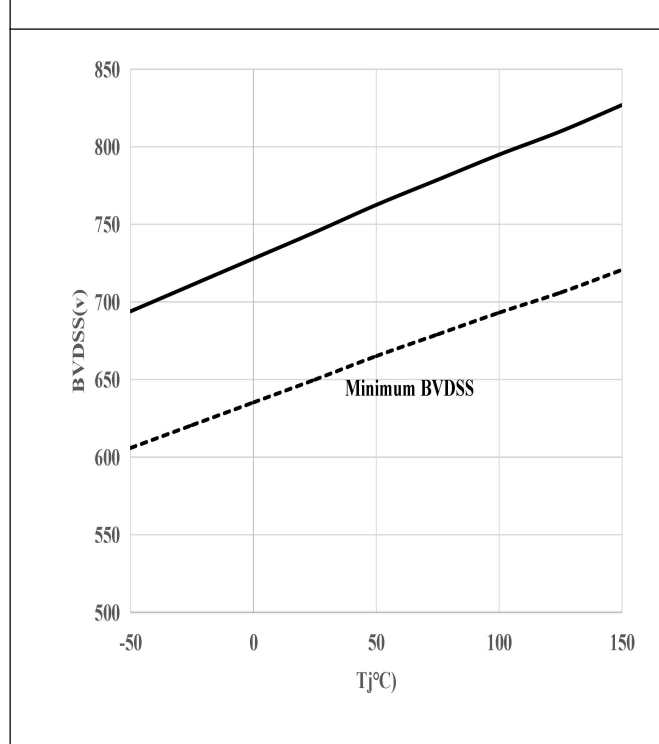
**Figure 7: Typ. Output Characteristics**

 $I_D = f(V_{DS}); T_j = 25^\circ\text{C}; \text{parameter: } V_{GS}$ 
**Figure 8: Typ. Output Characteristics**

 $I_D = f(V_{DS}); T_j = 125^\circ\text{C}; \text{parameter: } V_{GS}$ 
**Figure 9: Typ. Drain-Source On-State Resistance**

 $R_{DS(ON)} = f(I_D); T_j = 125^\circ\text{C}; \text{parameter: } V_{GS}$ 
**Figure 10: Typ. Drain-Source On-State Resistance**

 $R_{DS(ON)} = f(T_j); I_D = 24\text{A}; V_{GS} = 10\text{V}$

**Figure 11: Typ. Transfer Characteristics**


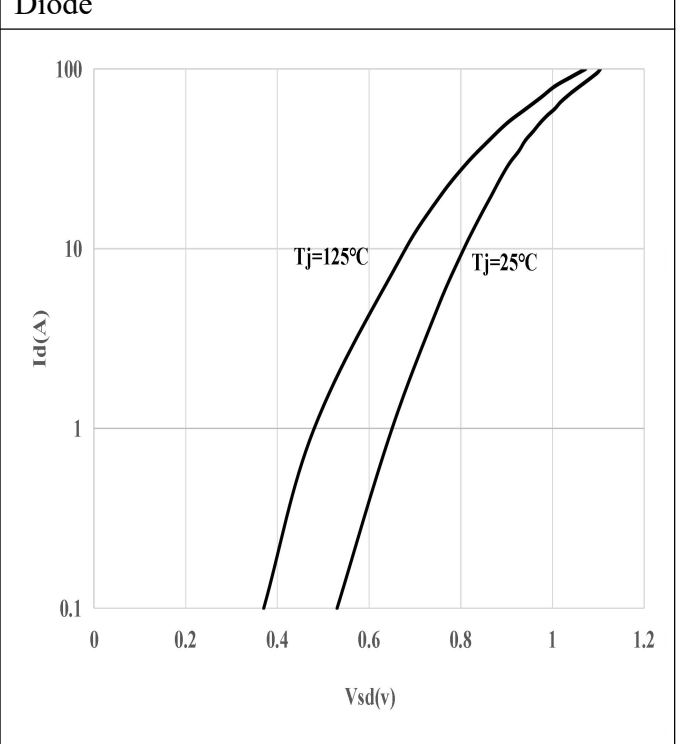
$$I_D = f(V_{GS}); V_{DS} = 20V$$

**Figure 12: Typ. Gate Charge**


$$V_{GS} = f(Q_{gate}), I_D = 24A \text{ pulsed}$$

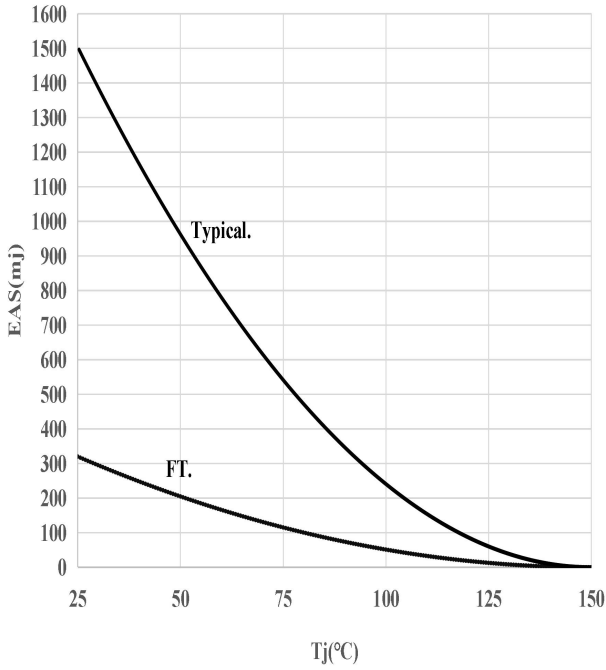
**Figure 13: Drain-Source Breakdown Voltage**


$$V_{BR(DSS)} = f(T_j); I_D = 10mA$$

**Figure 14: Forward Characteristics of Reverse Diode**


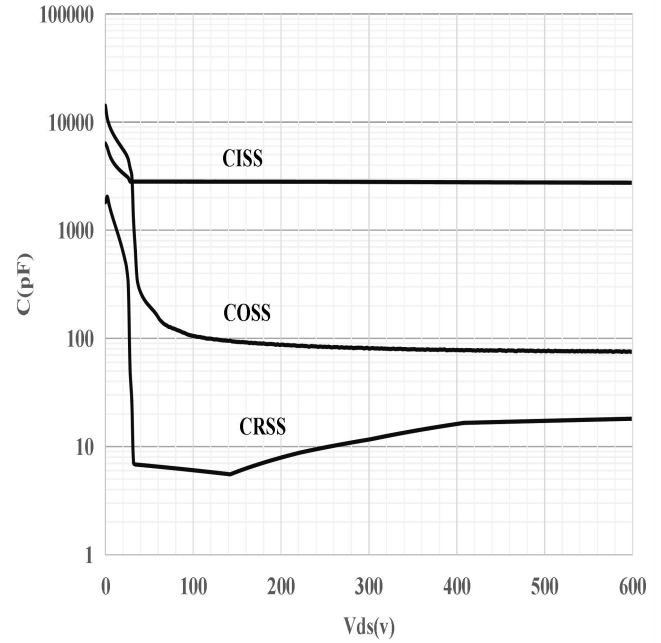
$$I_F = f(V_{SD}); \text{parameter: } T_j$$

Figure 15: Avalanche Energy



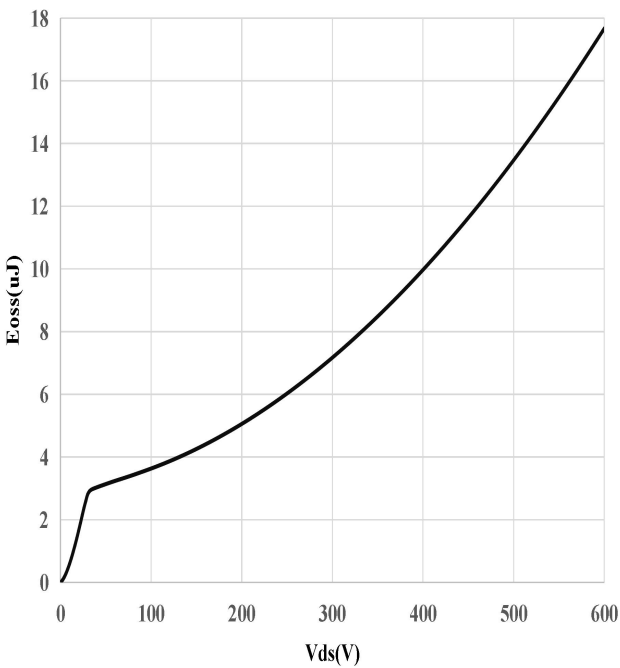
$E_{AS}=f(T_j); V_{DD}=60V$

Figure 16: Typ. Capacitances

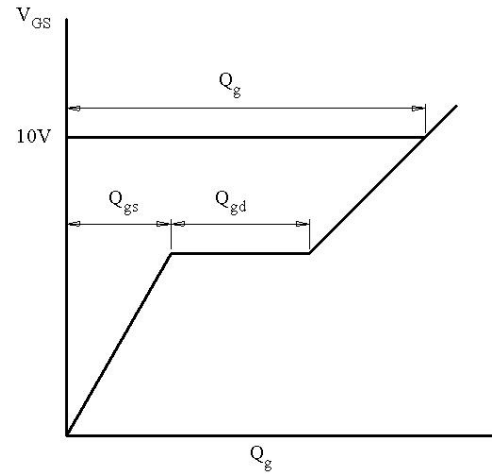
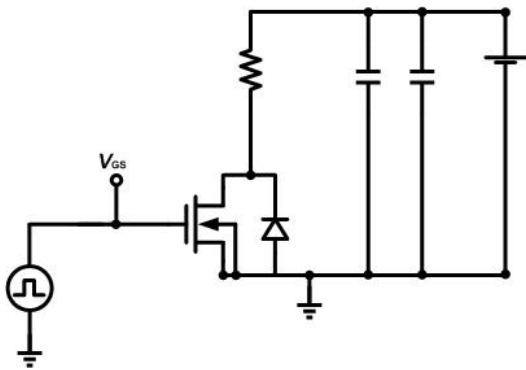
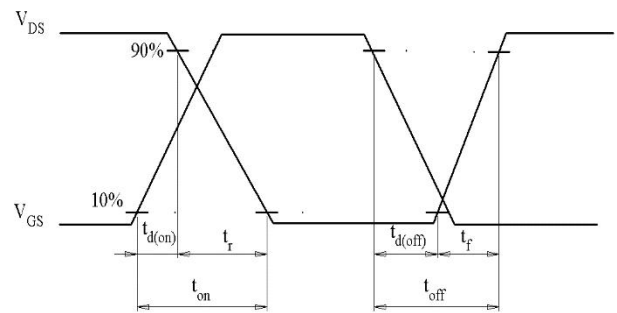
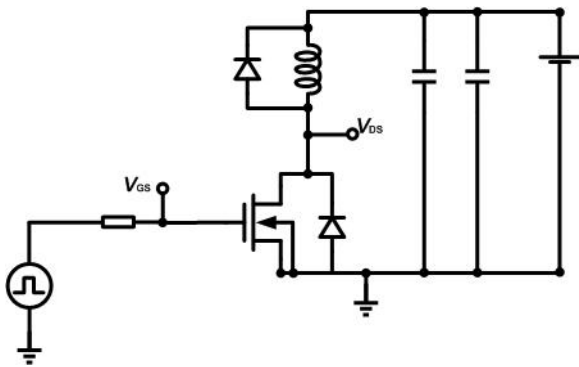
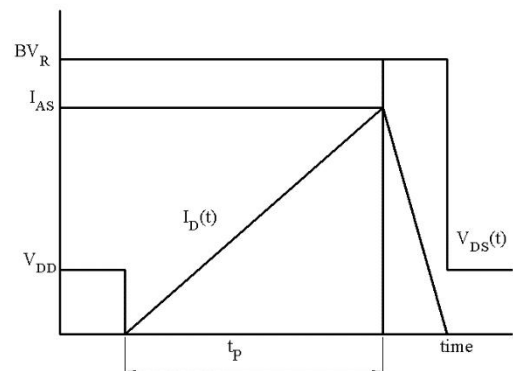
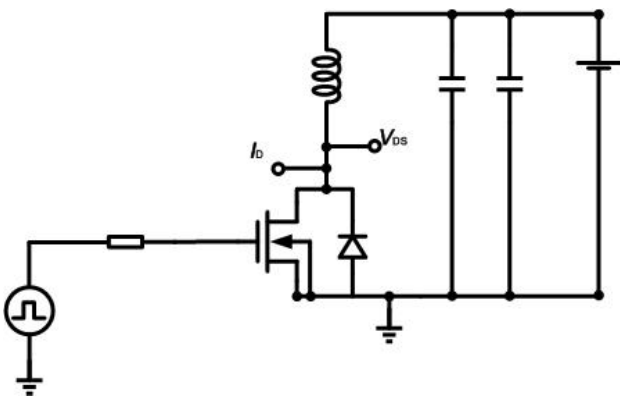


$C=f(V_{DS}); V_{gs}=0v; f=100kHz$

Figure 17: Coss Stored Energy

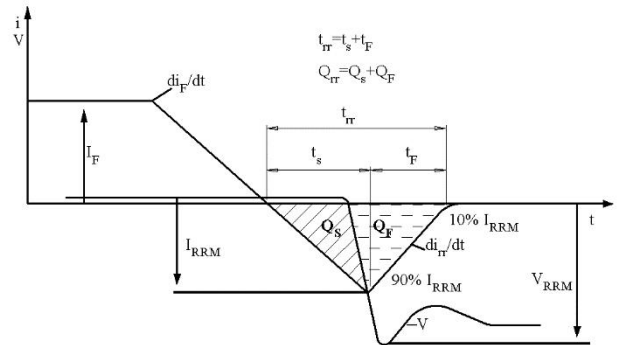
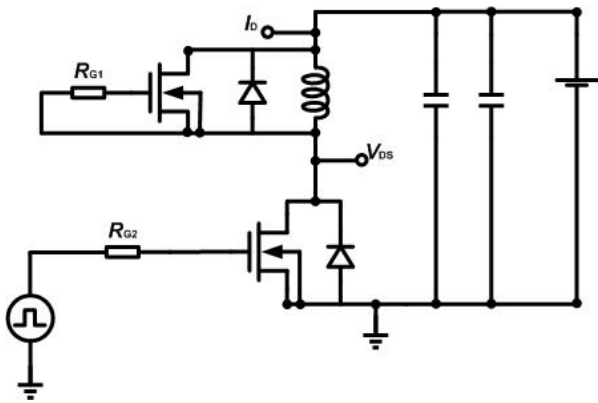


$E_{OSS}=f(V_{DS})$

**Test Circuits**
**1. Gate Charge Test Circuit & Waveform**

**2. Switch Time Test Circuit**

**3. Unclaimed Inductive Switching Test Circuit & Waveforms**


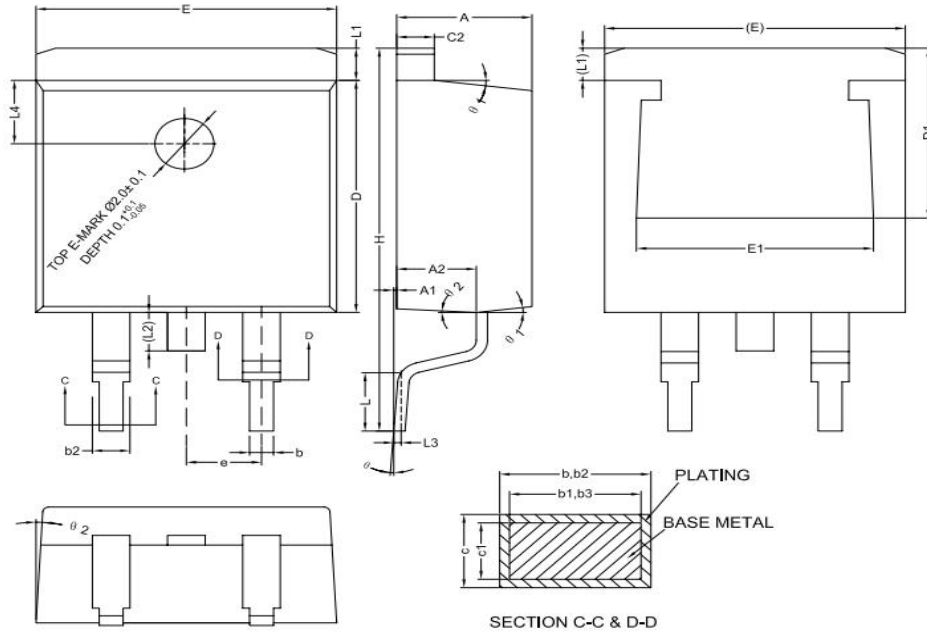


4. Test Circuit and Waveform for Diode Characteristics



**Mechanical Dimensions**
**TO-263-2 (Package 1)**

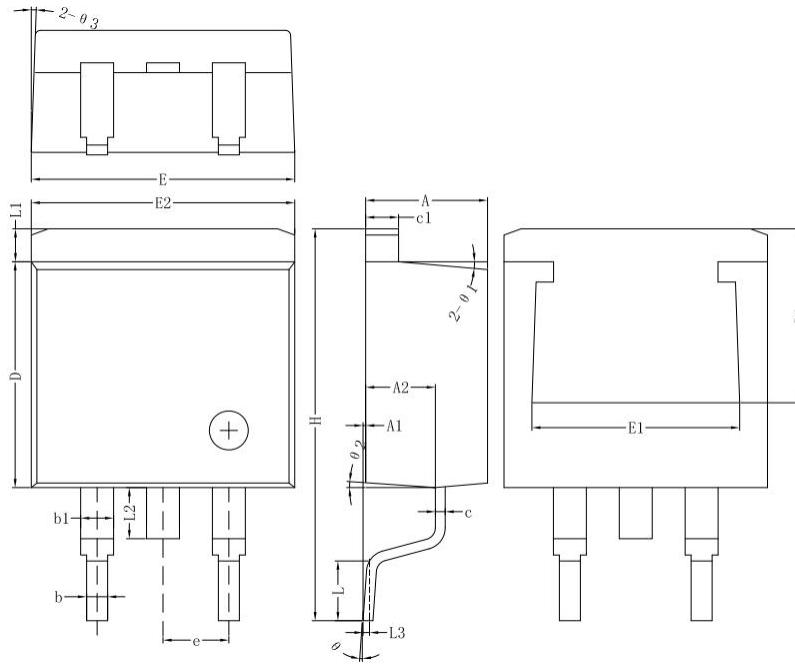
Unit: mm



Symbol	Dimensions(mm)		
	Min.	Typ.	Max.
A	4.40	4.57	4.70
A1	0.00	0.10	0.25
A2	2.59	2.69	2.79
b	0.77	-	0.90
b1	0.76	0.81	0.86
b2	1.23	-	1.36
b3	1.22	1.27	1.32
c	0.34	-	0.47
c1	0.33	0.38	0.43
c2	1.22	-	1.32
D	9.05	9.15	9.25
D1	6.60	-	-
E	10.06	10.16	10.26
E1	7.80	-	8.20
e	2.54(BSC)		
H	14.70	15.10	15.50
L	2.00	2.30	2.60
L1	1.17	1.27	1.40
L2	-	-	1.75
L3	0.25BSC		
L4	2.00REF		
θ	0°	-	8°
θ1	5°	7°	9°
θ2	1°	3°	5°

**Mechanical Dimensions**
**TO-263-2 (Package 2)**

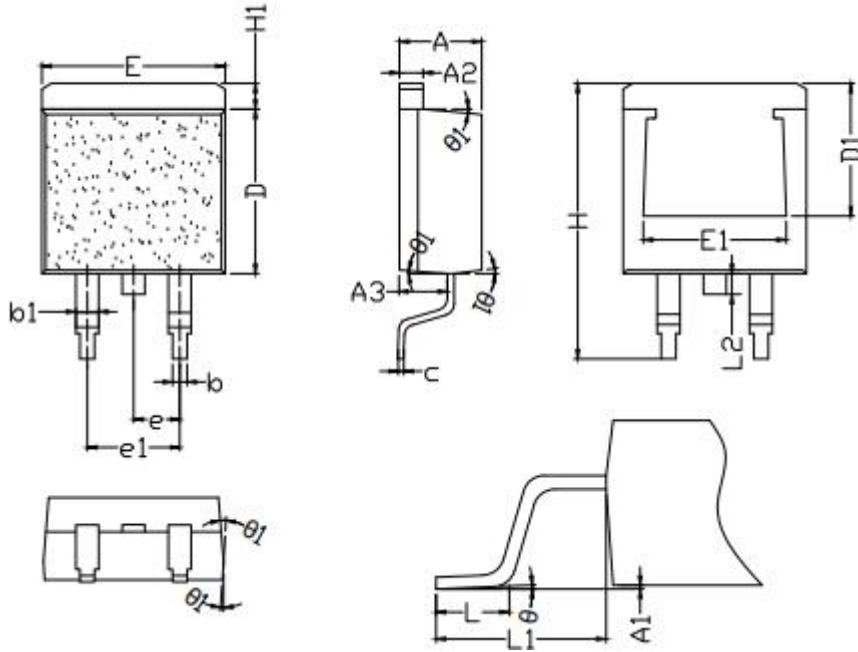
Unit: mm



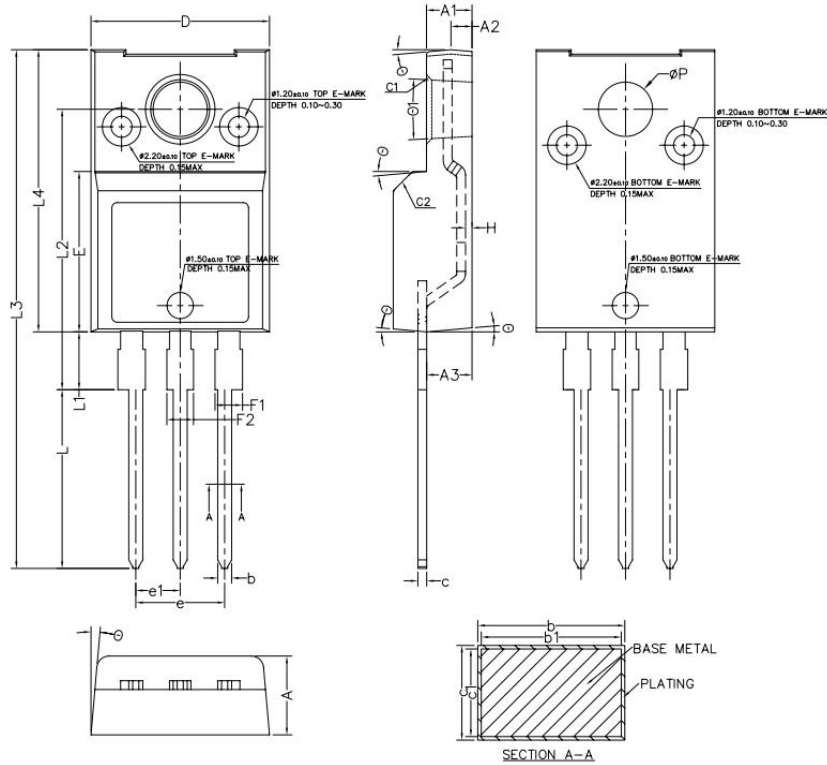
Symbol	Dimensions(mm)		
	Min.	Typ.	Max.
A	4.55	4.70	4.85
A1	0.00	0.10	0.25
A2	2.59	2.69	2.89
b	0.71	0.81	0.96
b1	-	1.27	-
c	0.36	0.38	0.61
c1	1.17	1.27	1.37
D	8.55	8.70	8.85
D1	-	7.2	-
E	10.01	10.16	10.31
E1	-	7.80	-
E2	9.98	10.08	10.18
e	-	2.54	-
H	14.70	15.10	15.50
L	2.00	2.30	2.70
L1	1.17	1.27	1.40
L2	-	-	2.20
L3	-	0.25BSC	-
θ	0°	-	8°
θ1		5°	
θ2		4°	
θ3		4°	

**Mechanical Dimensions**
**TO-263-2 (Package 3)**

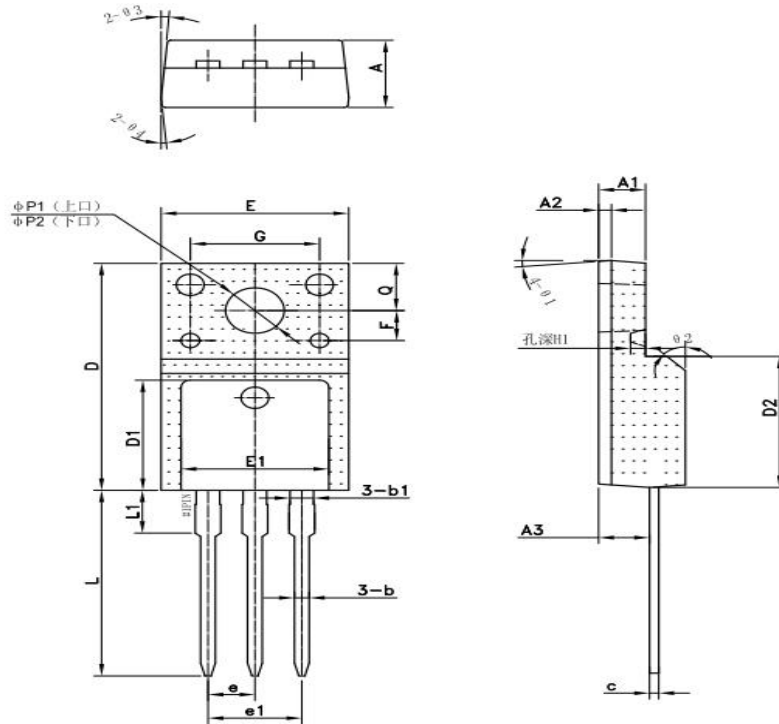
Unit: mm



Symbol	Dimensions(mm)		
	Min.	Typ.	Max.
A	4.42	4.52	4.62
A1	0.00	0.10	0.25
A2	1.24	1.27	1.32
A3	2.50	2.60	2.70
b	0.77	0.81	0.84
b1	1.23	1.28	1.41
c	0.33	0.38	0.43
D	8.80	8.95	9.10
D1	7.2REF		
E	9.92	10.07	10.22
E1	7.85REF		
e	2.50	2.54	2.58
e1	5.08REF		
H	14.80	15.10	15.30
H1	1.12	1.28	1.42
L	2.10	2.23	2.36
L1	4.55	4.75	4.95
L2	1.10	1.30	1.50
θ	0°	2°	5°
θ1	3°	-	5°

**Mechanical Dimensions**
**TO-220F (Package 1)**
**Unit: mm**


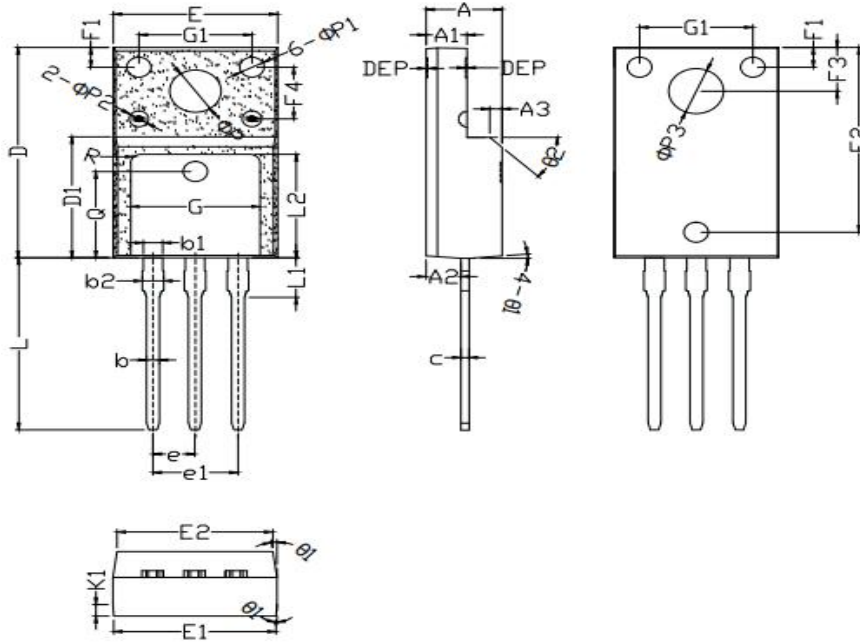
Symbol	Dimensions(mm)		
	Min.	Typ.	Max.
A	4.40	4.50	4.60
A1	2.50	2.60	2.70
A2	1.10	1.20	1.30
A3	2.49	2.59	2.69
b	0.76	-	0.89
b1	0.75	0.80	0.85
c	0.46	-	0.59
c1	0.45	0.50	0.55
C1	0.20	0.30	0.40
C2	1.00	1.10	1.20
D	10.10	10.20	10.30
E	9.05	9.15	9.25
e	4.98	5.08	5.18
e1	2.44	2.54	2.64
F1	1.22	-	1.60
F2	1.17	-	1.55
H	0.32	0.37	0.42
L	10.00	10.20	10.40
L1	3.15	3.30	3.45
L2	15.85	16.00	16.15
L3	29.30	29.60	29.90
L4	16.00	16.10	16.20
P	3.00	3.10	3.20
θ	3°	5°	7°
θ1	4°	6°	8°

**Mechanical Dimensions**
**TO-220F (Package 2)**
**Unit: mm**


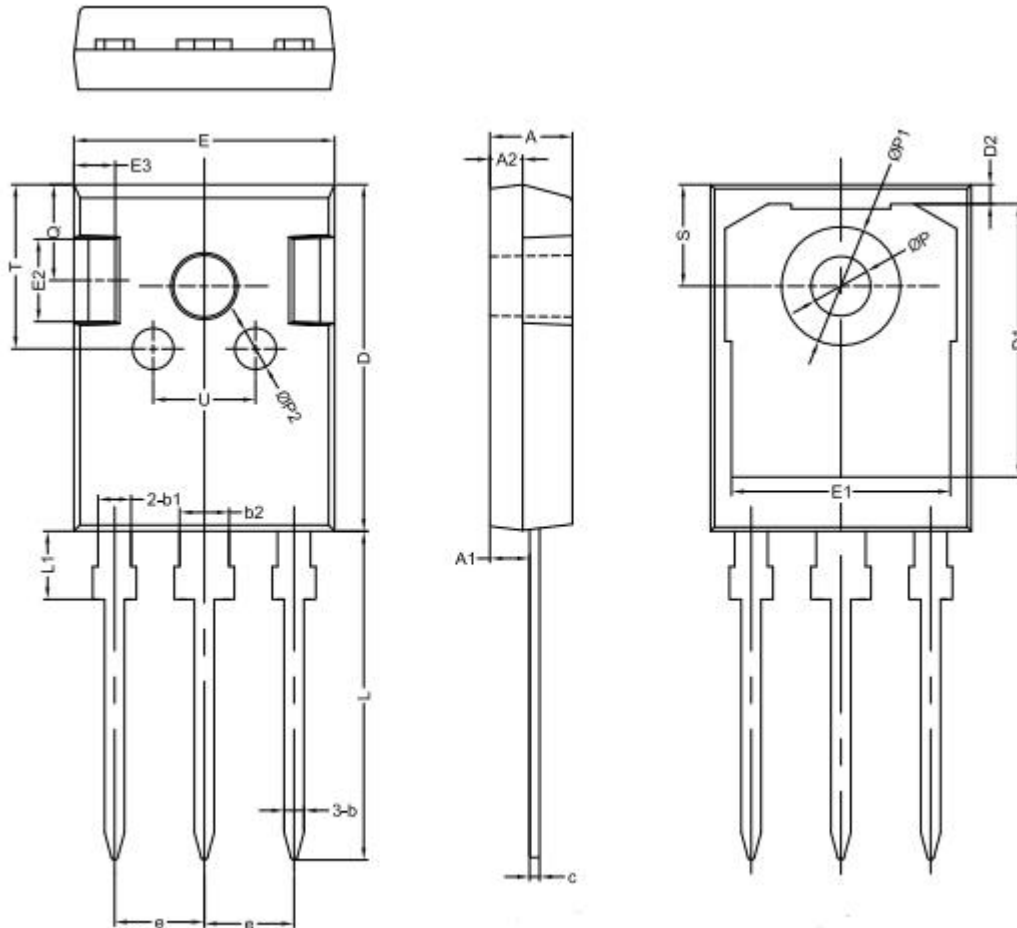
Symbol	Dimensions(mm)		
	Min.	Typ.	Max.
A	4.50	4.70	4.90
A1	2.34	2.54	2.70
A2	-	0.70	-
A3	2.56	2.76	2.96
b	0.70	0.80	0.95
b1	-	1.28	-
c	0.45	0.50	0.65
D	15.67	15.87	16.07
D1	-	7.70	-
D2	-	9.12	-
E	9.96	10.16	10.36
E1	-	8.00	-
e	2.54		
e1		5.08	
F		2.1	
G		7	
H1	-	0.81	-
L	12.48	12.98	13.20
L1	-	2.93	-
ΦP1 (上口)	2.98	3.18	3.38
ΦP2 (下口)	3.20	3.40	3.60
Q	3.10	3.30	3.50
θ1		5°	
θ2		45°	
θ2		5°	
θ3		5°	

**Mechanical Dimensions**
**TO-220F (Package 3)**

Unit: mm

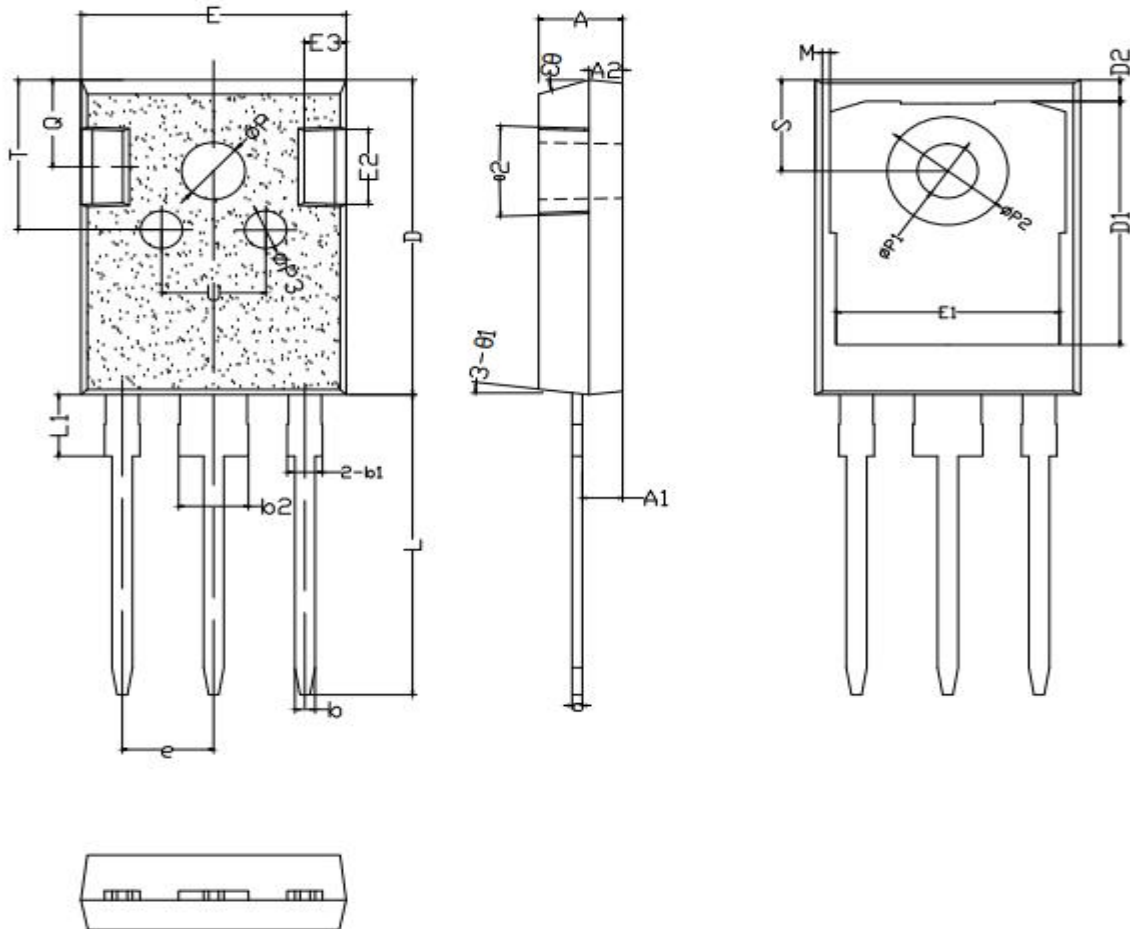


Symbol	Dimensions(mm)		
	Min.	Typ.	Max.
A	4.50	4.70	4.90
A1	2.34	2.54	2.74
A2	2.60	2.80	2.95
A3	1.0REF		
b	0.75	0.80	0.85
b1	1.18	1.20	1.24
b2	1.18	1.24	1.30
c	0.45	0.50	0.55
D	15.67	15.87	16.07
D1	9.04	9.12	9.20
E	10.00	10.16	10.30
E1	9.94	10.06	10.30
E2	9.40	9.50	9.60
e	2.50	2.54	2.58
e1	5.08REF		
L	12.78	12.98	13.18
L1	2.70	2.92	3.20
L2	7.70	7.80	7.90
Q	6.50REF		
ΦP	3.08	3.18	3.28
ΦP1	1.45	1.55	1.65
ΦP2	0.95	1.15	1.35
ΦP3	3.30	3.40	3.50
θ1	3°	5°	7°
θ2	42°	45°	48°
F1	1.40	1.50	1.60
F2	13.80	13.90	14.00
F3	3.20	3.30	3.40
F4	3.70	3.90	4.10
G	7.80	8.00	8.20
G1	6.90	7.00	7.10
K1	0.65	0.70	0.75

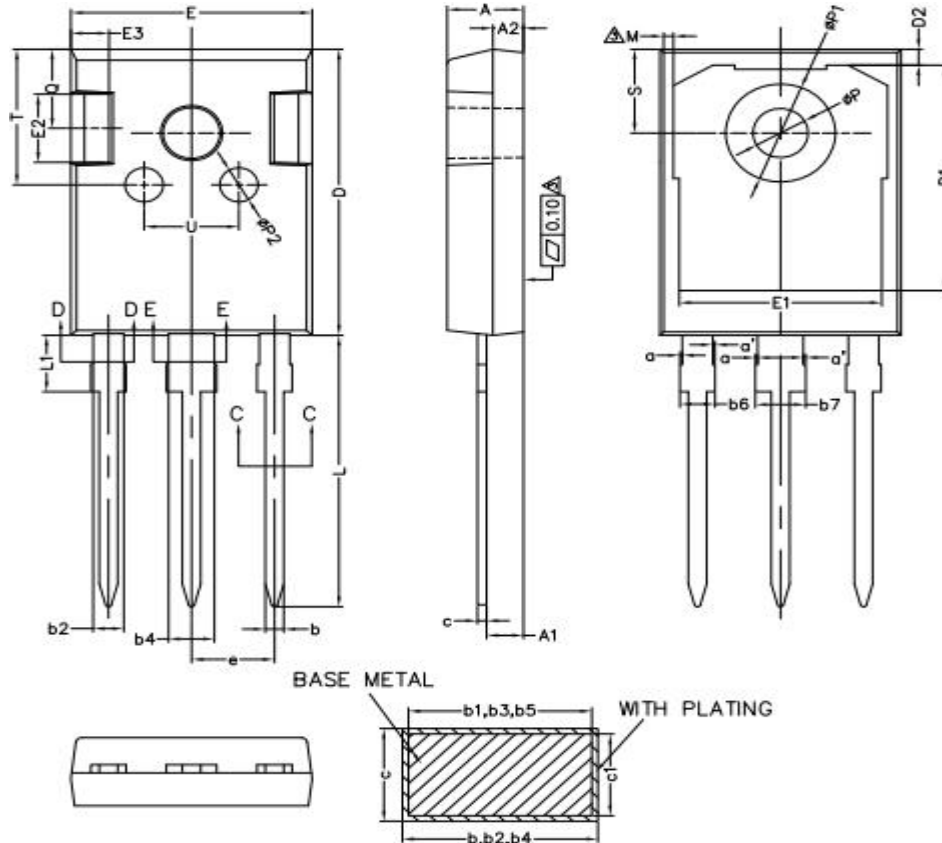
**Mechanical Dimensions**
**TO-247(Package 1)**
**Unit: mm**


Symbol	Dimensions(mm)			Symbol	Dimensions(mm)		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	4.80	5.00	5.20	E1	-	13.30	-
A1	2.21	2.41	2.61	E2	-	5.00	-
A2	1.90	2.00	2.10	E3	-	2.50	-
b	1.10	1.20	1.35	L	19.42	19.92	20.42
b1	-	2.00	-	L1	-	4.13	-
b2	-	3.00	-	P	3.50	3.60	3.70
c	0.55	0.60	0.75	P1	-	7.19	-
D	20.80	21.00	21.20	P2	-	2.50	-
D1	-	16.55	-	Q	-	5.80	-
D2	-	1.20	-	S	6.05	6.15	6.25
E	15.60	15.80	16.0	T	-	10.00	-
U	-	6.20	-				

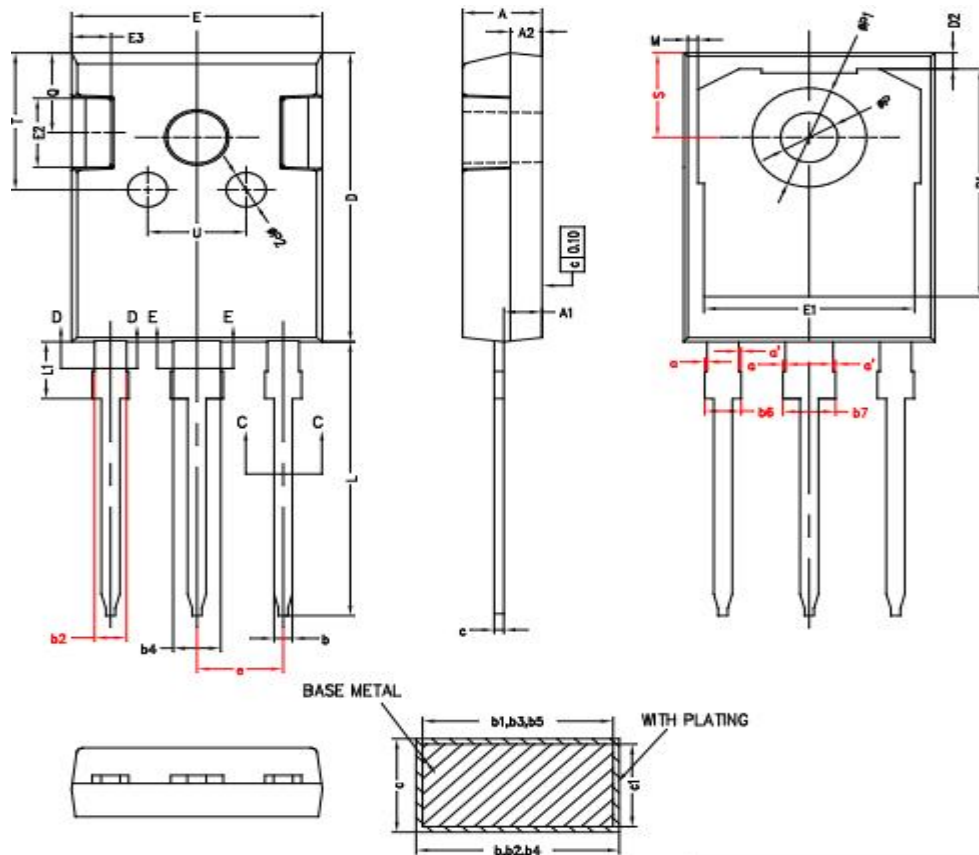


**Mechanical Dimensions**
**TO-247(Package 2)**
**Unit: mm**


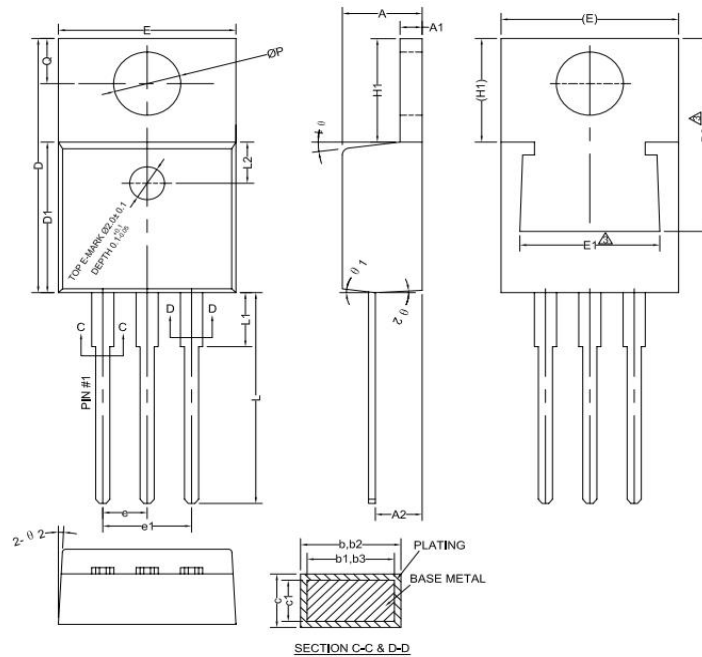
Symbol	Dimensions(mm)			Symbol	Dimensions(mm)		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	4.90	5.00	5.10	E1	13.10	13.25	13.40
A1	2.31	2.41	2.51	E2	4.85	4.95	5.10
A2	1.90	2.00	2.10	E3	2.40	2.50	2.60
b	1.15	1.20	1.25	L	19.80	19.98	20.15
b1	1.95	2.10	2.25	L1	-	-	4.30
b2	2.95	3.10	3.25	ΦP	3.60	3.70	3.80
c	0.55	0.60	0.65	ΦP1	3.40	3.50	3.60
D	20.90	21.00	21.10	ΦP2	6.90	7.10	7.30
D1	16.35	16.55	16.75	Q	5.60	5.80	6.00
D2	1.05	1.20	1.35	S	6.05	6.15	6.25
E	15.70	15.80	15.90	T	9.80	10.00	10.20
U	6.00	6.20	6.40	e	5.40	5.44	5.48
Θ1	5°	7°	9°	ΦP3	2.40	2.50	2.60
Θ2	1°	3°	5°	Θ3	13°	15°	17°

**Mechanical Dimensions**
**TO-247(Package 3)**
**Unit: mm**


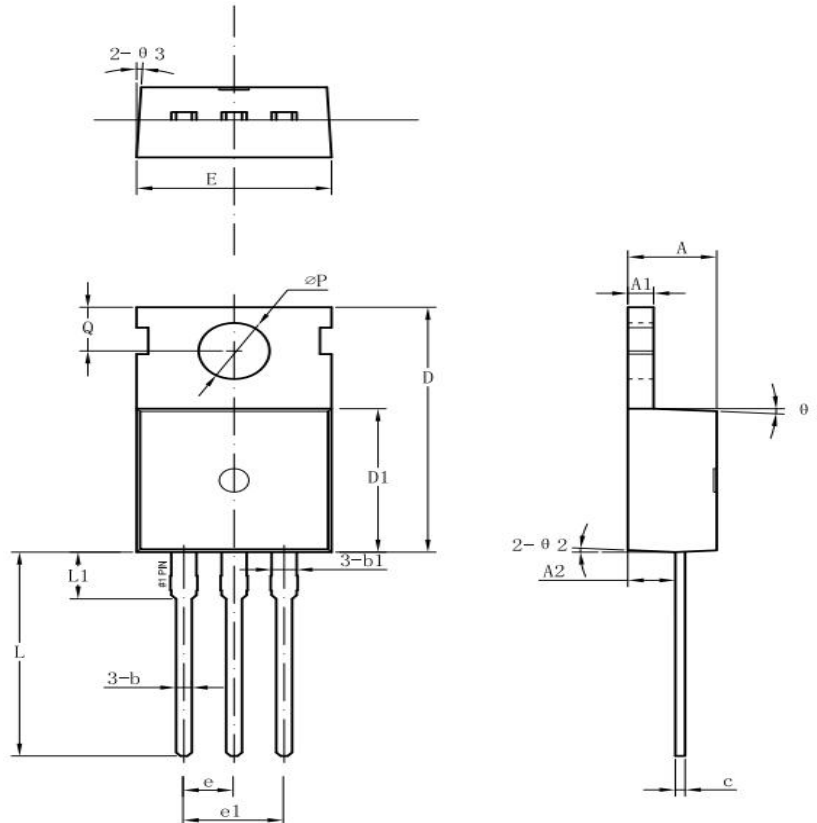
Symbol	Dimensions(mm)			Symbol	Dimensions(mm)		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	4.90	5.00	5.10	c1	0.58	0.60	0.62
A1	2.31	2.41	2.51	D	20.90	21.00	21.10
A2	1.90	2.00	2.10	D1	16.25	16.55	16.85
b	1.16	-	1.26	D2	1.05	1.20	1.35
b1	1.15	1.20	1.22	E	15.70	15.80	15.90
b2	1.96	-	2.06	E1	13.10	13.30	13.50
b3	1.95	2.00	2.02	E2	4.90	5.00	5.10
b4	2.96	-	3.06	E3	2.40	2.50	2.60
b5	2.95	3.00	3.02	e	5.34	5.44	5.54
b6	-	-	2.25	L	19.80	19.92	20.10
b7	-	-	3.25	L1	3.95	4.13	4.30
c	0.59	-	0.66	M	0.35	-	0.95
P	3.50	3.60	3.70	P1	7.00	-	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	a	0	-	0.15
a'	0	-	0.15				

**Mechanical Dimensions**
**TO-247(Package 4)**
**Unit: mm**


Symbol	Dimensions(mm)			Symbol	Dimensions(mm)		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	4.90	5.00	5.10	E2	4.90	5.00	5.10
A1	2.31	2.41	2.51	E3	2.40	2.50	2.60
A2	1.90	2.00	2.10	e	5.34	5.44	5.54
b	1.12	-	1.22	L	19.80	19.92	20.10
b1	1.11	1.16	1.18	L1	3.95	4.13	4.30
b2	1.96	-	2.06	P	3.50	3.60	3.70
c	0.59	-	0.66	P1	7.00	-	7.40
D	20.90	21.00	21.10	P2	2.40	2.50	2.60
D1	16.25	16.55	16.85	Q	5.60	-	6.00
D2	1.05	1.20	1.35	S	6.05	6.15	6.25
E	15.70	15.80	15.90	T	9.80	-	10.20
E1	13.10	13.30	13.50	U	6.00	-	6.40
b3	1.95	2.00	2.02	b6	-	-	2.25
b4	2.96	-	3.06	b7	-	-	3.25
b5	2.95	3.00	3.02	c1	0.58	0.60	0.62
M	0.35	-	0.95	a	0	-	0.15
a'	0	-	0.15				

**Mechanical Dimensions**
**TO-220C (Package 1)**
**Unit: mm**


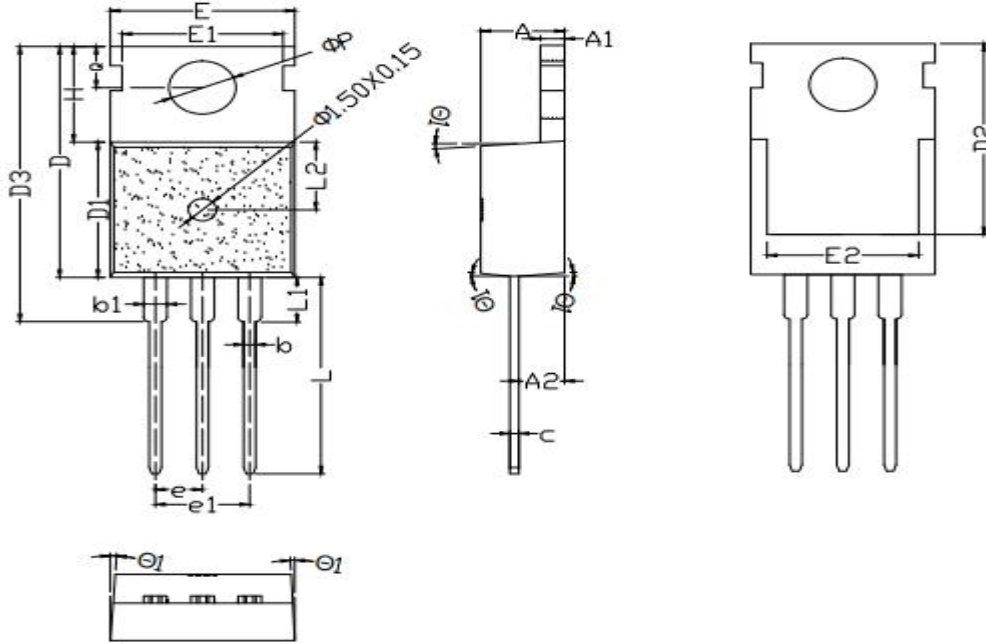
Symbol	Dimensions(mm)		
	Min.	Typ.	Max.
A	4.40	4.57	4.70
A1	1.22	-	1.32
A2	2.59	2.69	2.79
b	0.77	-	0.90
b1	0.76	0.81	0.86
b2	1.23	-	1.36
b3	1.22	1.27	1.32
c	0.34	-	0.47
c1	0.33	0.38	0.43
D	15.15	15.45	15.75
D1	9.05	9.15	9.25
D2	11.40	-	12.88
E	9.96	10.16	10.36
E1	6.86	-	8.89
e	2.44	2.54	2.64
e1	4.98	5.08	5.18
H1	6.10	6.30	6.50
L	12.70	-	13.12
L1	-	-	3.90
ΦP	3.80	3.84	3.88
Q	2.60	-	2.90
θ1	5°	7°	9°
θ2	1°	2°	5°

**Mechanical Dimensions**
**TO-220C (Package 2)**
**Unit: mm**


Symbol	Dimensions(mm)		
	Min.	Typ.	Max.
A	4.30	4.50	4.70
A1	1.25	1.30	1.40
A2	2.20	2.40	2.60
b	0.70	0.80	0.95
b1	-	1.27	-
c	0.40	0.50	0.65
D	15.20	15.70	16.20
D1	9.00	9.20	9.40
E	9.70	10.00	10.20
e		2.54	
e1		5.08	
L	12.60	13.08	13.60
L1	-	3.00	-
$\Phi P$	3.50	3.60	3.80
Q	2.60	2.80	3.00
$\theta 1$		3°	
$\theta 2$		3°	
$\theta 2$		3°	

**Mechanical Dimensions**
**TO-220C (Package 3)**

Unit: mm



Symbol	Dimensions(mm)		
	Min.	Typ.	Max.
A	4.40	4.50	4.60
A1	1.25	1.30	1.35
A2	2.30	2.40	2.50
b	0.70	0.80	0.90
b1	1.25	1.33	1.42
c	0.45	0.50	0.55
D	15.50	15.75	16.00
D1	9.10	9.20	9.30
D2	12.90	13.10	13.30
D3	15.45	15.80	16.15
E	9.80	10.02	10.15
e	2.54BSC		
e1	5.08BSC		
L	13.00	13.28	13.45
L1	-	-	3.40
ΦP	3.55	3.65	3.75
Q	2.65	2.75	2.85
θ1	2°	-	7°
E1	8.55	8.70	8.85
E2	7.40	7.60	7.80
H	6.40	6.50	6.60
L2	4.50	4.65	4.80



Shenzhen Sanrise Technology Co., LTD  
<http://www.sanrise-tech.com>

#### IMPORTANT NOTICE

Shenzhen Sanrise Technology Co., LTD. reserves the right to make changes without further notice to any products or specifications herein. Shenzhen Sanrise Technology Co., LTD. does not assume any responsibility for use of any its products for any particular purpose, nor does Shenzhen Sanrise Technology Co., LTD. assume any liability arising out of the application or use of any its products or circuits. Shenzhen Sanrise Technology Co., LTD. does not convey any license under its patent rights or other rights nor the rights of others.

---

#### Main Site:

##### - Headquarter

Shenzhen Sanrise Technology Co., LTD.  
A1206, Skyworth building, No. 008, gaoxinnan 1st Road,  
Gaoxin District, Yuehai street,, Nanshan District, ShenZhen,  
P.R.China  
Tel: +86-755-22953335  
Fax: +86-755-22916878

##### - Shanghai Office

Shenzhen Sanrise Technology Co., LTD  
Rm.401, Building B, No. 666, Zhangheng Road,  
Zhangjiang Hi-Tech Park, Shanghai, P.R.China  
Tel: +86-21-68825918