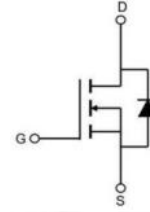


N-Channel Enhancement Mosfet

Features

- 150V,185A
 $R_{DS(on)}$ (TYP:3.8m Ω) <4.5m Ω @ $V_{GS}=10V$
 $R_{DS(on)}$ (TYP:4.5m Ω) <5.5m Ω @ $V_{GS}=6V$
- Split Gate Trench Technology
- Lead free product is acquired
- Excellent $R_{DS(on)}$ and Low Gate Charge



Schematic Diagram

TO-247



Applications

- Motor control and drive
- Battery management System
- Uninterruptible Power Supplies
- Halogen-free

Package Marking and Ordering Information

Device Marking	Device	Device Package	Packaging Code	Tube (PCS)
185N100	RM185N150T7	TO-247	-C	30

ABSOLUTE MAXIMUM RATINGS ($T_J=25^{\circ}C$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	150	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ($T_c=25^{\circ}C$) ⁽¹⁾	I_D	185	A
Continuous Drain Current ($T_c=100^{\circ}C$)	I_D	117	A
Pulsed Drain Current ⁽¹⁾	I_{DM}	740	A
Drain Power Dissipation	P_D	313	W
Single Pulsed Avalanche Energy ⁽²⁾	E_{AS}	1681	mJ
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	45	$^{\circ}C/W$
Thermal Resistance from Junction to Case	$R_{\theta JC}$	0.4	$^{\circ}C/W$
Junction Temperature	T_J	-55~ +150	$^{\circ}C$
Storage Temperature	T_{STG}	-55~ +150	$^{\circ}C$

2026-03/59
REV:0

Notes:

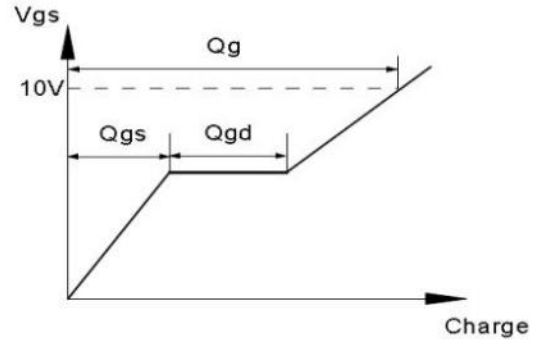
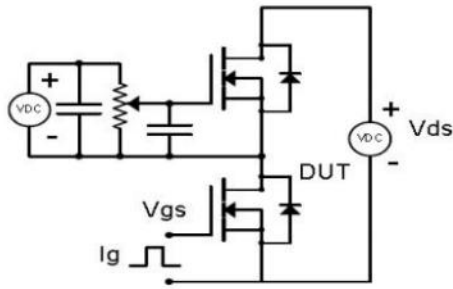
- 1) Repetitive Rating: pulse width limited by maximum junction temperature
- 2) EAS condition : $T_J=25^{\circ}C$, $V_{DD}=75V$, $V_G=10V$, $L=0.5mH$, $R_g=25\Omega$, $I_{AS}=82A$

MOSFET ELECTRICAL CHARACTERISTICS($T_J=25^{\circ}\text{C}$ unless otherwise noted)

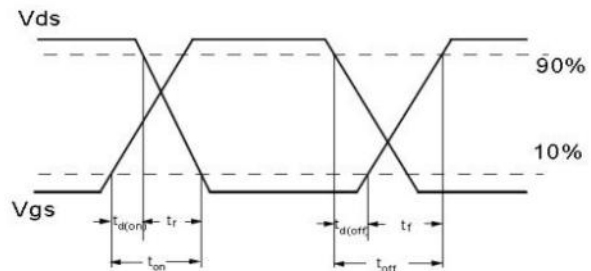
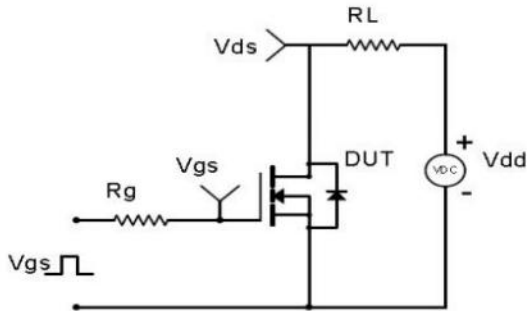
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	150	-	-	V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 150V, V_{GS} = 0V$	-	-	1	μA
Gate-body leakage current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$	-	-	± 100	nA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	2.0	3.2	4.0	V
Drain-source on-resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 90A$	-	3.8	4.5	m Ω
		$V_{GS} = 6V, I_D = 45A$	-	4.5	5.5	m Ω
Gate Resistance	R_g	$V_{GS} = 0V, V_{DS} = 0V, f = 1.0MHz$	-	0.22	-	Ω
Dynamic characteristics						
Input Capacitance	C_{iss}	$V_{DS} = 75V, V_{GS} = 0V, f = 1MHz$	-	9420	-	pF
Output Capacitance	C_{oss}		-	765	-	
Reverse Transfer Capacitance	C_{rss}		-	45	-	
Switching characteristics						
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 75V, I_D = 90A, R_G = 3\Omega,$ $V_{GS} = 10V$	-	32	-	ns
Turn-on rise time	t_r		-	43	-	
Turn-off delay time	$t_{d(off)}$		-	57	-	
Turn-off fall time	t_f		-	36	-	
Total Gate Charge	Q_g	$V_{DS} = 75V, I_D = 40A,$ $V_{GS} = 10V$	-	128	-	nC
Gate-Source Charge	Q_{gs}		-	41	-	
Gate-Drain Charge	Q_{gd}		-	26	-	
Source-Drain Diode characteristics						
Diode Forward voltage	V_{SD}	$T_J = 25^{\circ}\text{C}, V_{GS} = 0V, I_S = 90A$	-	-	1.2	V
Diode Forward current	I_S	$T_C = 25^{\circ}\text{C}$	-	-	185	A
Body Diode Reverse Recovery Time	t_{rr}	$T_J = 25^{\circ}\text{C}, I_F = 90A, di/dt = 100A/\mu s$	-	108	-	ns
Body Diode Reverse Recovery Charge	Q_{rr}		-	320	-	nC

Test Circuit & Waveform

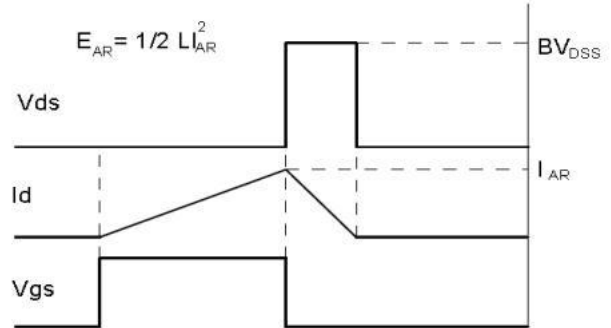
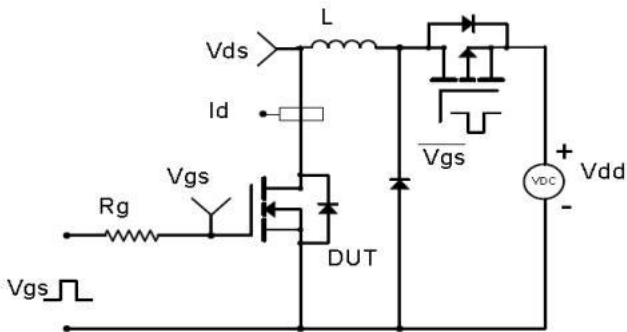
Gate Charge Test Circuit & Waveform



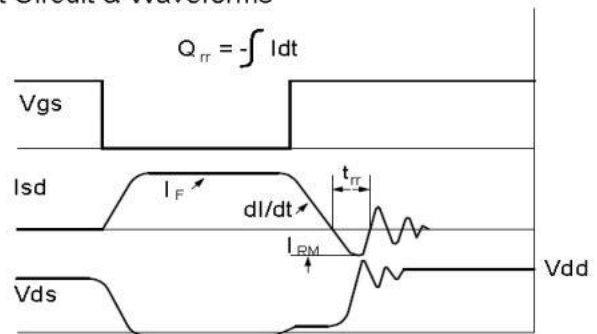
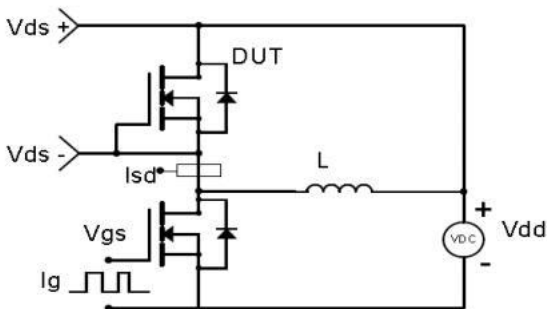
Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms



RATING AND CHARACTERISTICS CURVES (RM185N150T7)

Figure 1. Output Characteristics

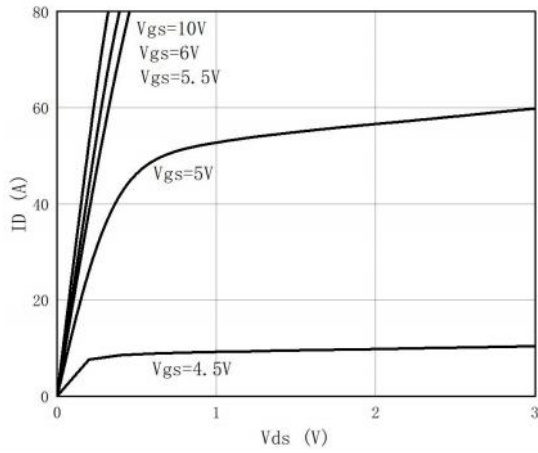


Figure 2. Transfer Characteristics

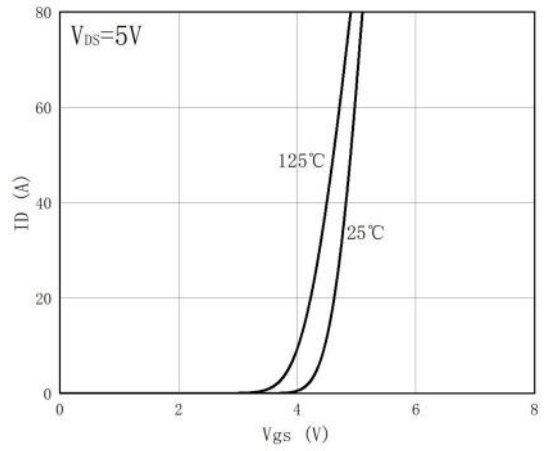


Figure 3. Source Drain Forward Characteristics

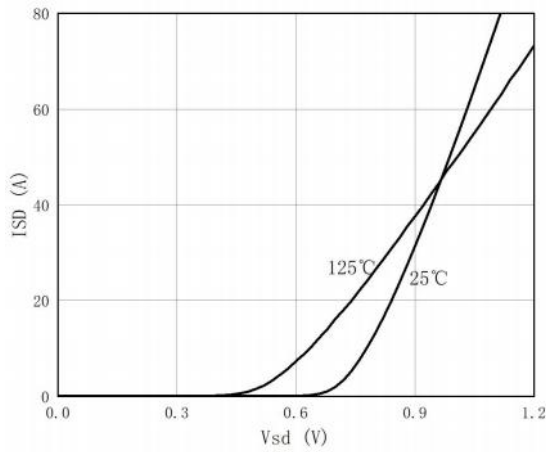


Figure 4. Gate-Charge Characteristics

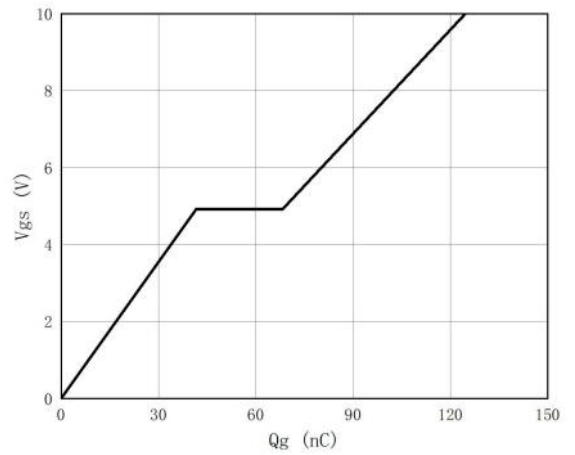


Figure 5. On-Resistance vs. Drain Current and Gate Voltage

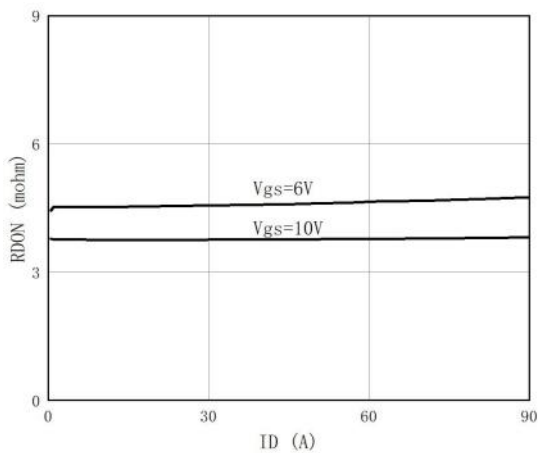
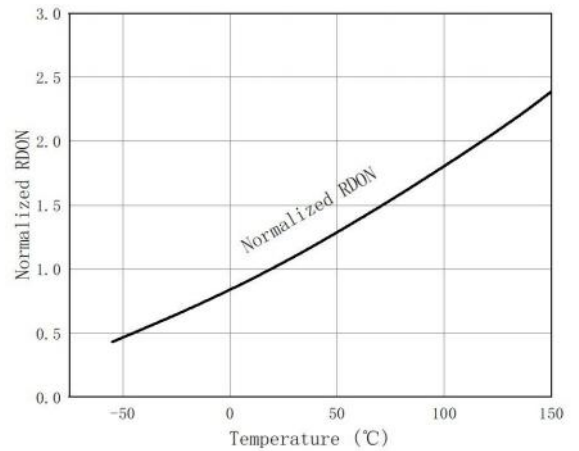


Figure 6. RDS(ON) vs Junction Temperature



RATING AND CHARACTERISTICS CURVES (RM185N150T7)

Figure 7: V_{th} vs Junction Temperature

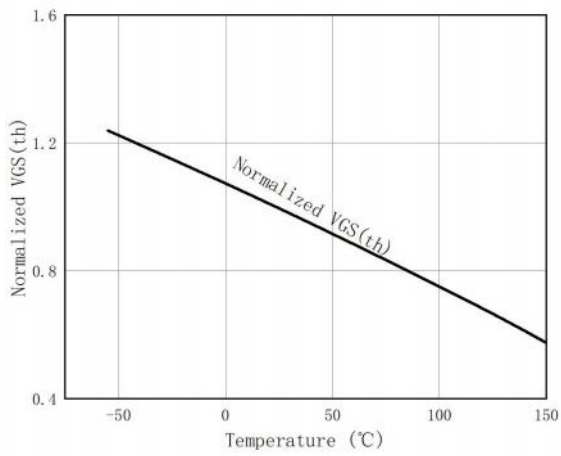


Figure 8: $BVDSS$ vs. Junction Temperature

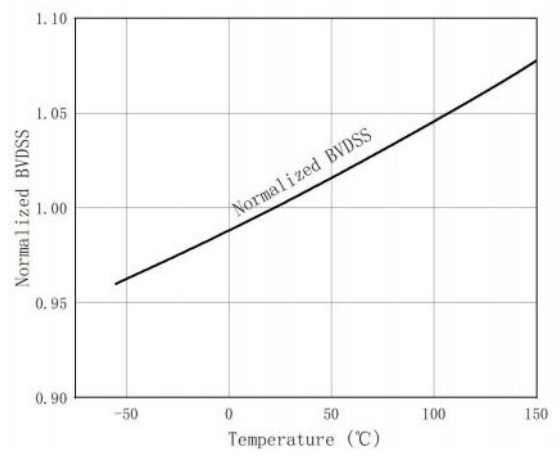


Figure 9. Capacitance

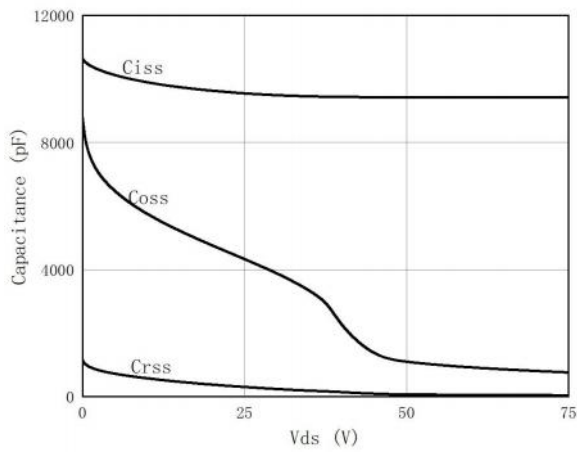


Figure 10. On-Resistance vs. Gate-Source Voltage

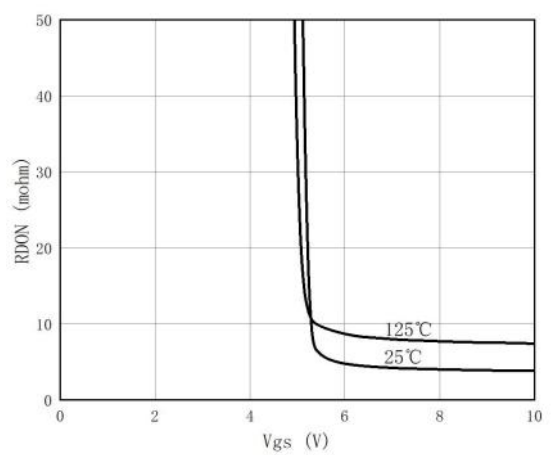


Figure 11. Current De-rating

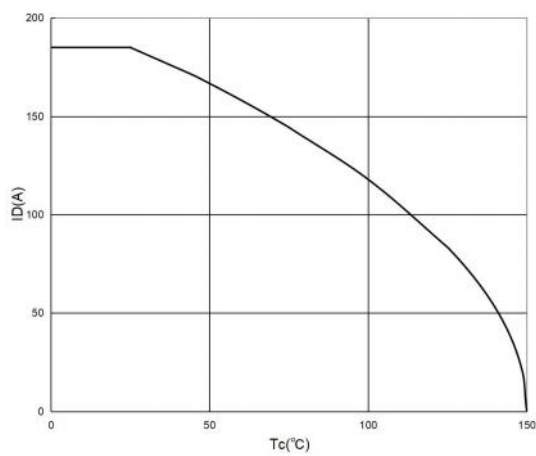
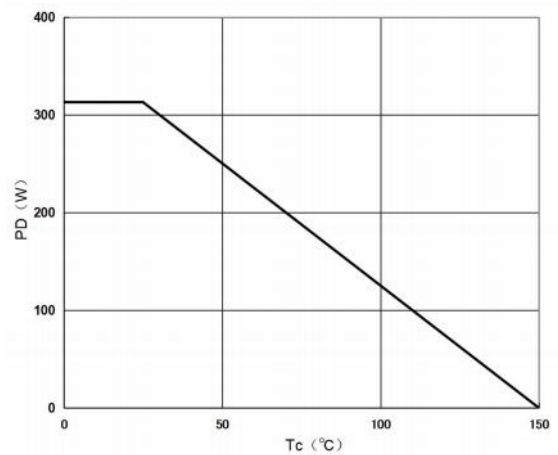


Figure 12. Power De-rating



RATING AND CHARACTERISTICS CURVES (RM185N150T7)

Figure 13. Safe Operating Area

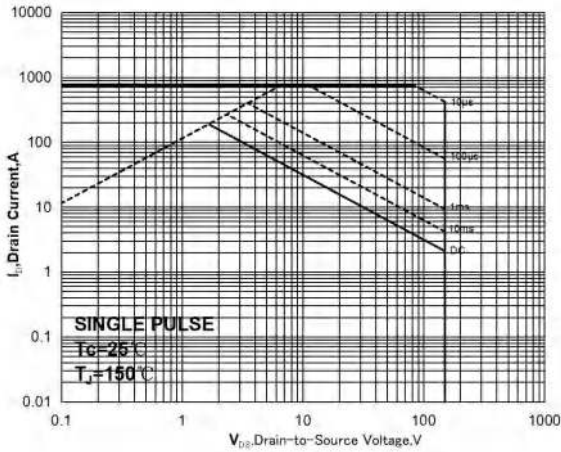
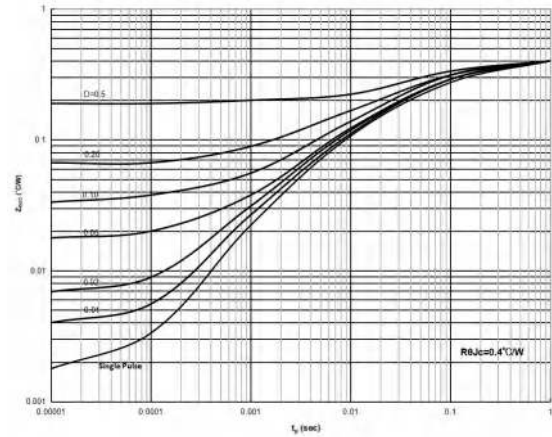
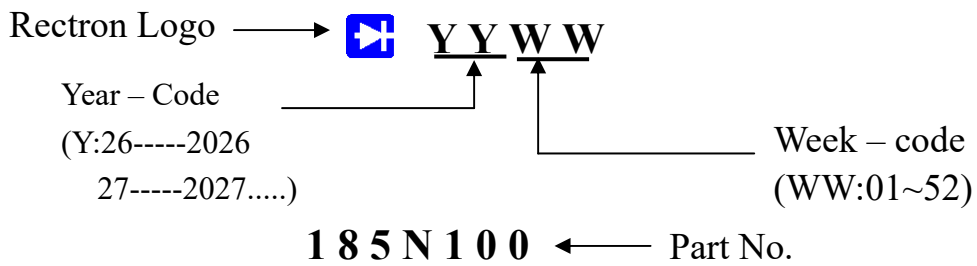


Figure 14. Normalized Maximum Transient Thermal Impedance

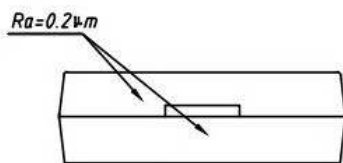
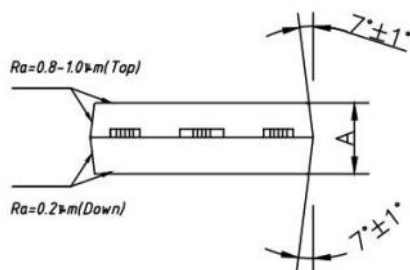
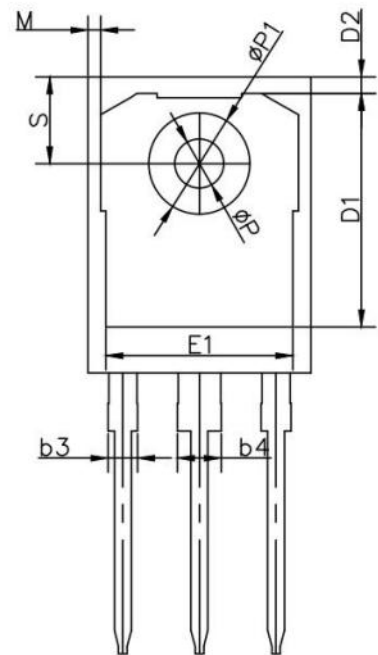
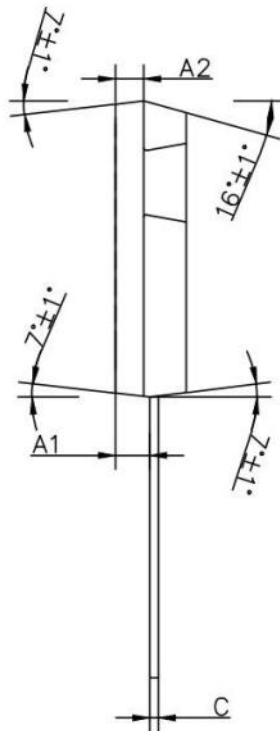
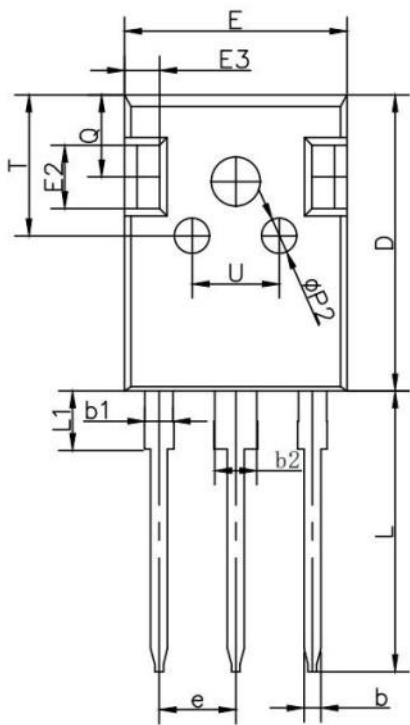


RECTRON

Marking on the body



TO-247 Package Information



TO247-3L			
DIM.	MIN.	NOM.	MAX.
A	4.90	5.00	5.10
A1	2.31	2.432	2.51
A2	1.90	2.00	2.10
b	1.16	1.20	1.26
b1	1.96	2.00	2.06
b2	2.96	3.00	3.06
b3	-	-	2.25
b4	-	-	3.25
c	0.59	0.60	0.66
D	20.90	21.00	21.10
D1	16.25	16.55	16.85
D2	1.05	1.17	1.35
E	15.70	15.80	15.90
E1	13.10	13.26	13.50
E2	4.40	4.50	4.60
E3	2.40	2.50	2.60
e	5.436BSC		
L	19.80	19.90	20.10
L1	-	-	4.30
M	0.35	0.89	0.95
P	3.40	3.50	3.60
P1	7.00	7.20	7.40
P2	2.40	2.50	2.60
Q	5.60	5.80	6.00
S	6.05	6.15	6.25
T	9.80	10.00	10.20
U	6.00	6.20	6.40
All dimensions in millimeters			

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