

VDS	RDS(on)	ID@25°C
1700V	45mΩ	72A

Applications:

- Solar Inverters
- Switch Mode Power Supplies
- High Voltage DC/DC Converters
- EV Charging
- Motor Drives

Features:

- High Blocking Voltage with Low On-Resistance
- High Speed Switching with Low Capacitances
- Easy to Parallel and Simple to Drive
- Avalanche Ruggedness

Benefits:

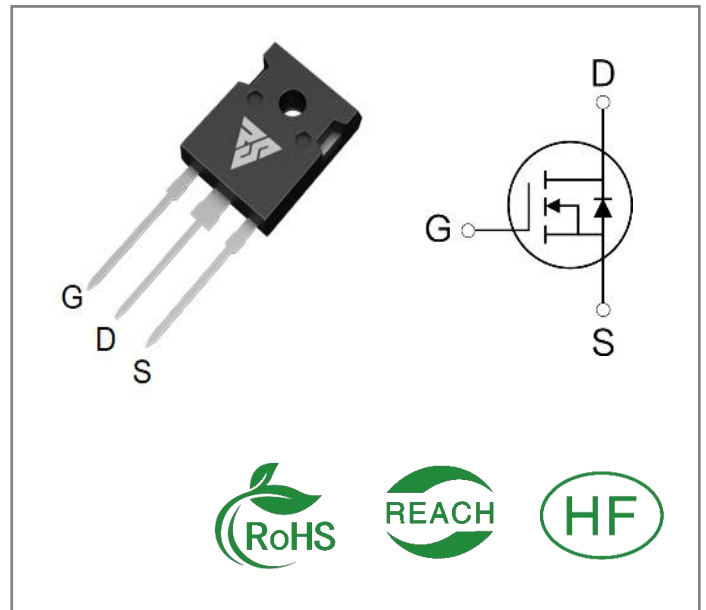
- Higher System Efficiency
- Reduced Cooling Requirements
- Increased Power Density
- Increased System Switching Frequency

Ordering Information

Part Number	Package	Marking	Packing	Qty.
RSM170045W	TO-247-3	RSM170045W	Tube	30 PCS

Maximum Ratings (T_J= 25°C unless otherwise specified)

Symbol	Parameter	Value	Unit	Test Conditions	Note
VDSmax	Drain - Source Voltage	1700	V	VGS=0V, ID =100μA	
VGSmax	Gate - Source Voltage	-10/+2 5	V	Absolute maximum values	
VGSop	Gate - Source Voltage	-5/+20	V	Recommended operational values	
ID	Continuous Drain Current	72 48	A	VGS=20V, TC =25°C VGS=20V, TC =100°C	
ID(pulse)	Pulsed Drain Current	160	A	Pulse width tp limited by TJmax	
PD	Power Dissipation	520	W	TC =25°C, TJ =150°C	
TL	Solder Temperature	260	°C		
TJ, Tstg	Operating Junction and Storage Temperature	-40 to + 150	°C		



Electrical Characteristics (T_J= 25°C unless otherwise specified)

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions	Note
V(BR)DSS	Drain-Source Breakdown Voltage	1700			V	VGS=0V, ID =100μA	
VGS(th)	Gate Threshold Voltage	2.0	2.6	4.0	V	VGS= VDS, IDS=18mA, TC =25°C	
			1.8		V	VGS= VDS, IDS=18mA, TC =150°C	
IDSS	Zero Gate Voltage Drain Current		1	100	μA	VDS= 1700V, VGS=0V	
IGSS	Gate-Source Leakage Current			250	nA	VGS=25V, VDS= 0V	
RDS(on)	Drain-Source on-state Resistance		45	70	mΩ	VGS=20V, ID =50A, TC =25°C	
			90			VGS=20V, ID =50A, TC =150°C	
Ciss	Input Capacitance		3550		pF	VGS=0V, VDS=1000 V, f=1MHz, VAC=25 mV	
Coss	Output Capacitance		165				
Crss	Reverse Transfer Capacitance		6.1				
EON	Turn-On Switching Energy		3100		μJ	VDS =1200V, VGS =-5/20V, ID = 30A, RG(ext) = 2.5Ω, L= 100μH	
EOFF	Turn-Off Energy		1100				
td(on)	Turn-On Delay Time		27		ns	VDS =1200V, VGS =-5/20 V ID = 30A, RG(ext) =2.5 Ω , RL =20Ω	
tr	Rise Time		32				
td(off)	Turn-Off Delay Time		16				
tf	Fall Time		10				
RG(int)	Internal Gate Resistance		2.6		Ω	f=1 MHz, VAC=25mV	
Qgs	Gate to Source Charge		54		nC	VDS=1200V, VGS=-5/20V ID =50A	
Qgd	Gate to Drain Charge		25		nC		
Qg	Total Gate Charge		193				

Reverse Diode Characteristics (T_J= 25°C unless otherwise specified)

Symbol	Parameter	Typ.	Max	Unit	Test Conditions	Note
VSD	Diode Forward Voltage	3.6		V	VGS=-5V, ISD = 25 A, T _J = 25°C	
		3.3		V	VGS=-5V, ISD= 25 A, T _J = 150°C	
IS	Continuous Diode Forward Current		72	A	VGS=-5V, TC= 25°C	
trr	Reverse Recovery time	55		ns	ISD= 50A, VR = 1200V	
Qrr	Reverse Recovery Charge	220		nC		
Irrm	Peak Reverse Recovery Current	6.7		A		

Thermal Characteristics (T_J= 25°C unless otherwise specified)

Symbol	Parameter	Typ.	Unit	Test Conditions	Note
R _{θJC}	Thermal Resistance from Junction to Case	0.24	°C/W		
R _{θJA}	Thermal Resistance From Junction to Ambient	40			

Typical Feature Curve

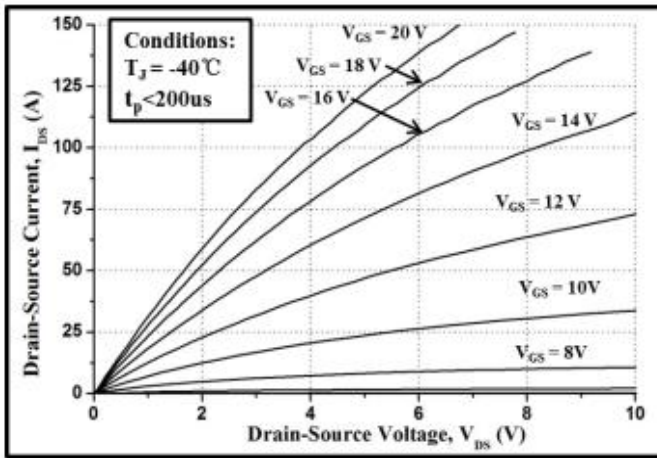


Figure 1. Output Characteristics $T_J = -40\text{ }^\circ\text{C}$

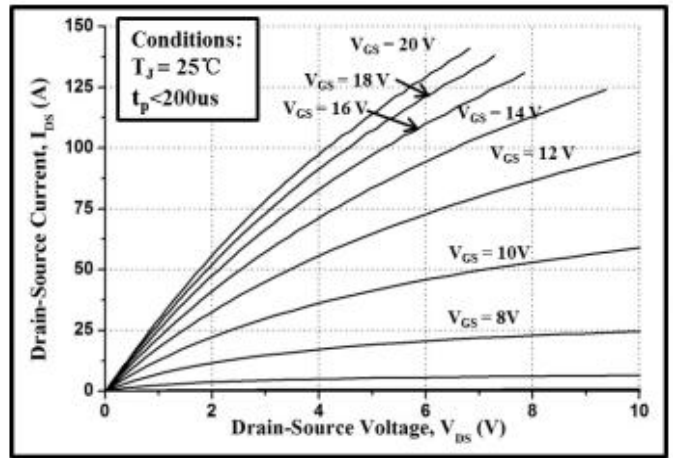


Figure 2. Output Characteristics $T_J = 25\text{ }^\circ\text{C}$

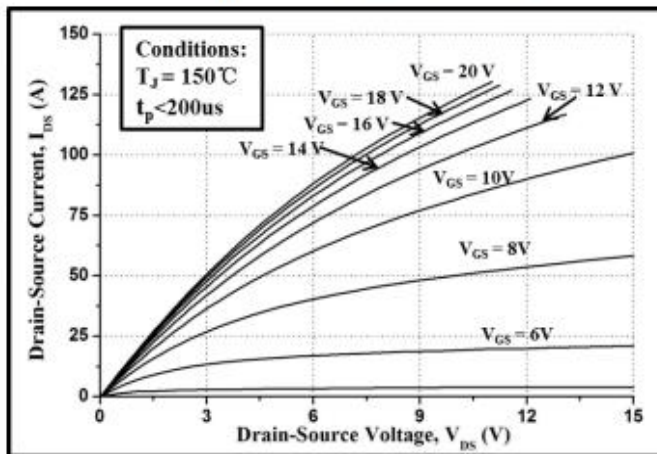


Figure 3. Output Characteristics $T_J = 150\text{ }^\circ\text{C}$

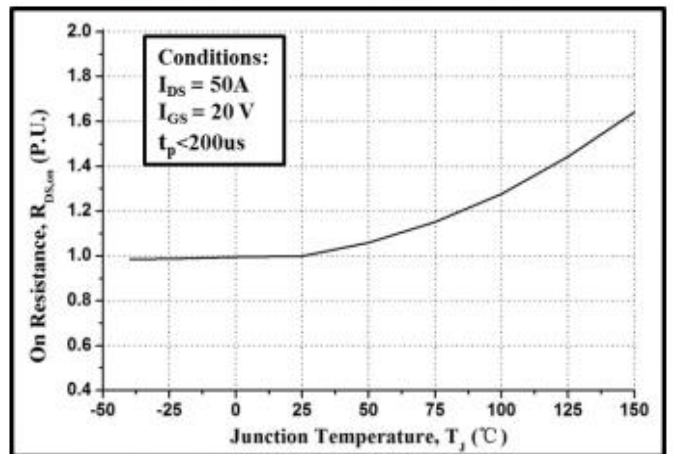


Figure 4. Normalized On-Resistance vs. Temperature

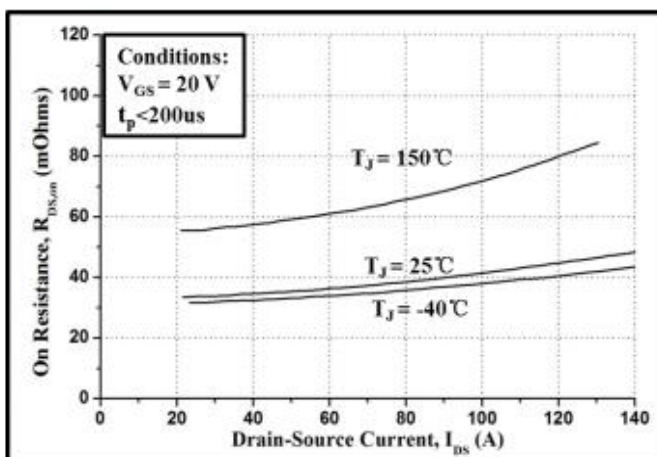


Figure 5. On-Resistance vs. Drain Current For Various Temperatures

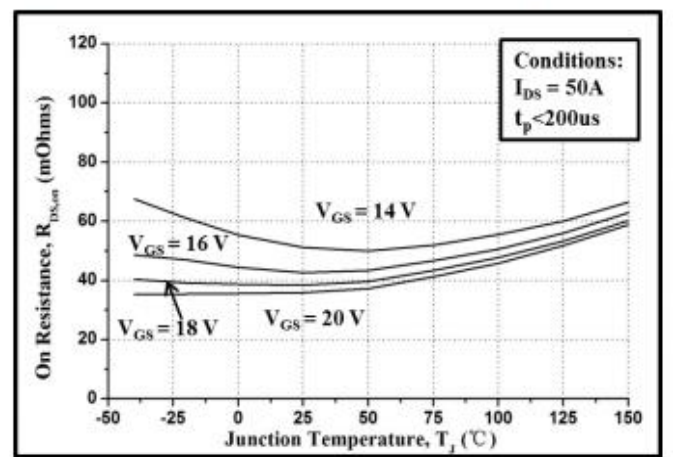


Figure 6. On-Resistance vs. Temperature For Various Gate Voltage

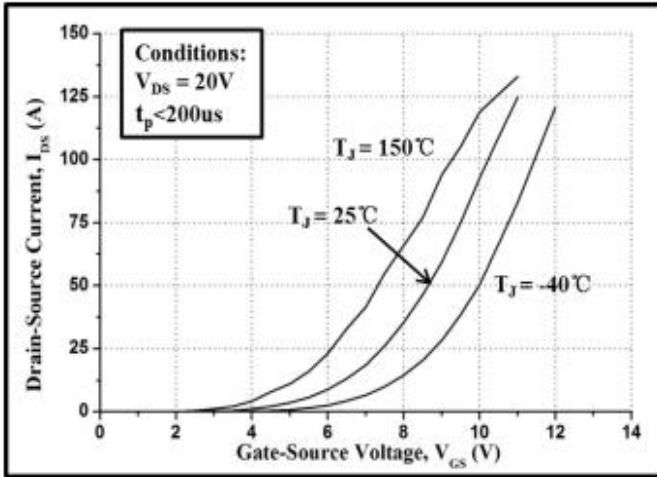


Figure 7. Transfer Characteristic for Various Junction Temperatures

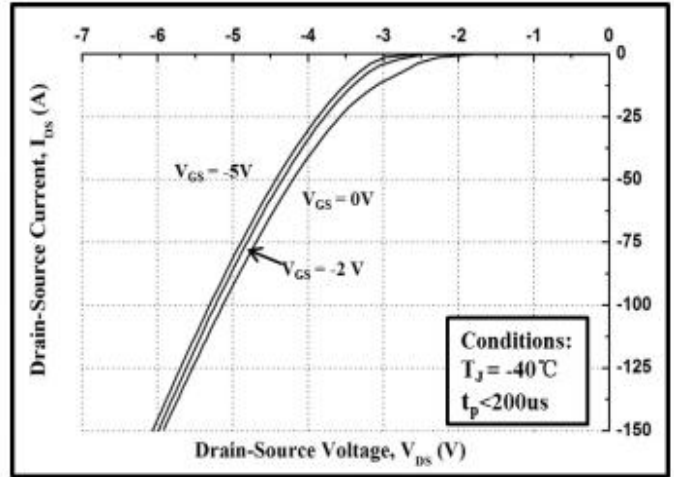


Figure 8. Body Diode Characteristic at -40 °C

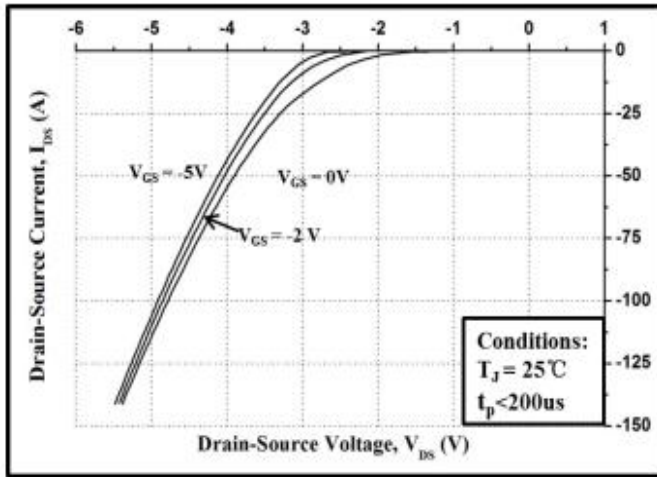


Figure 9. Body Diode Characteristic at 25 °C

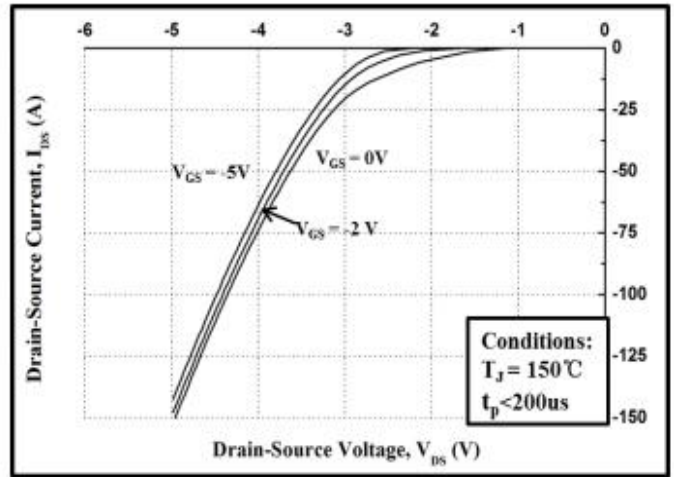


Figure 10. Body Diode Characteristic at 150 °C

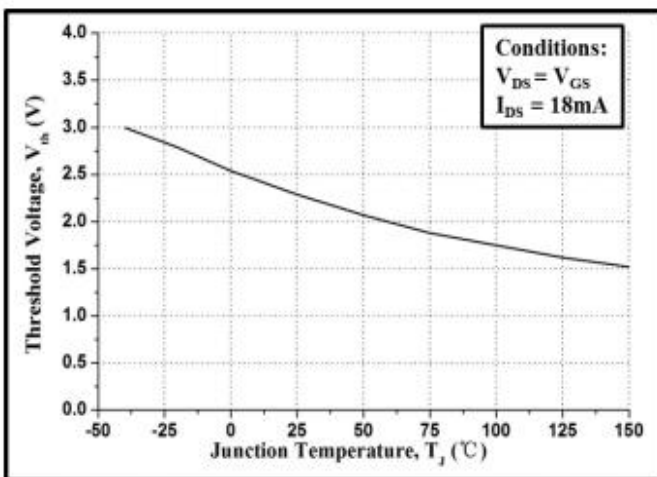


Figure 11. Threshold Voltage vs. Temperature

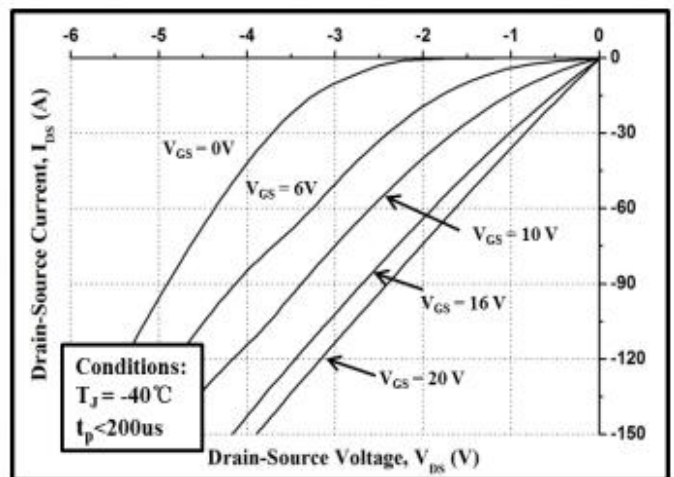


Figure 12. 3rd Quadrant Characteristic at -40 °C

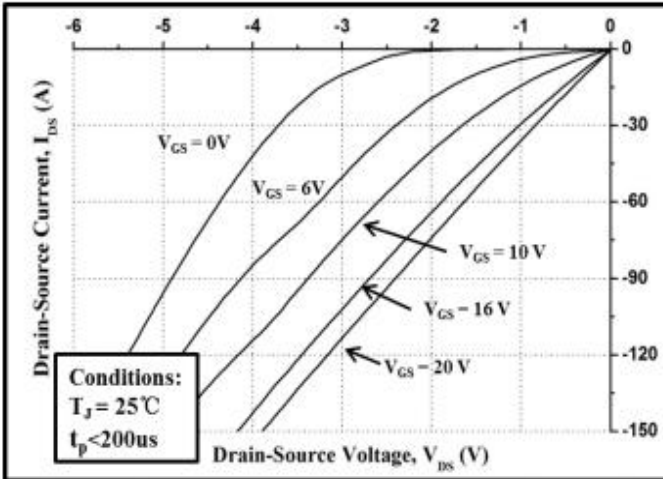


Figure 13. 3rd Quadrant Characteristic at 25°C

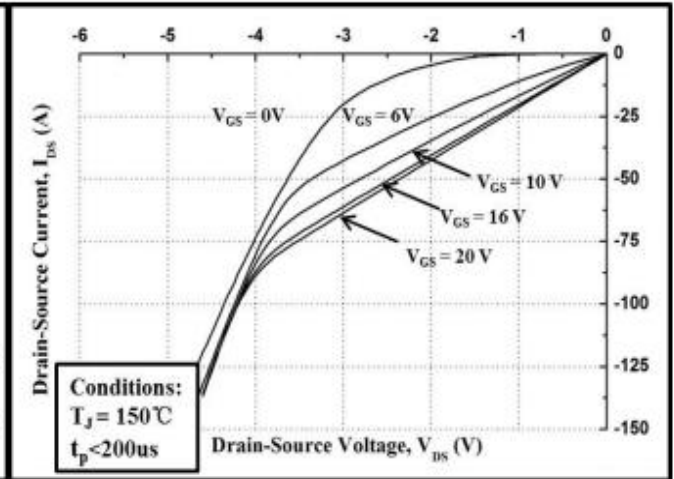


Figure 14. 3rd Quadrant Characteristic at 150°C

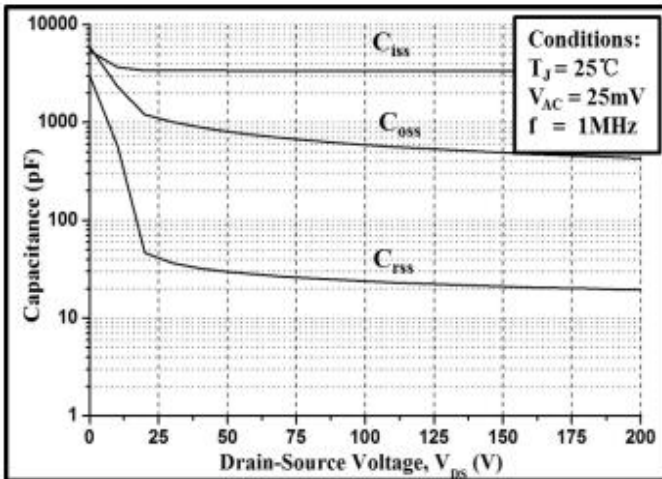


Figure 15. Capacitances vs. Drain-Source Voltage (0 - 200V)

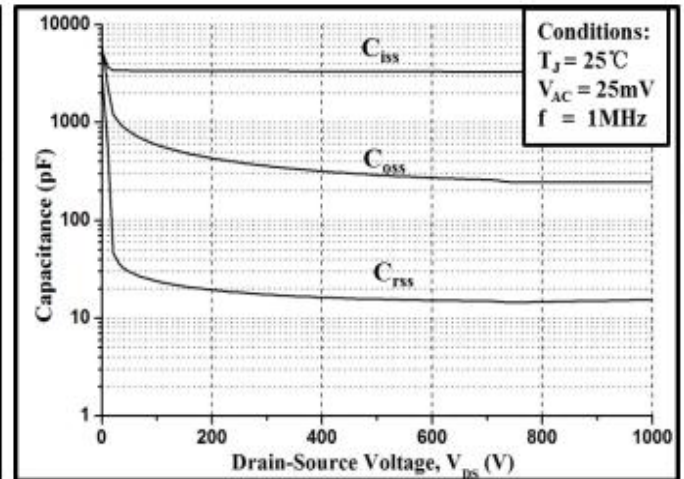


Figure 16. Capacitances vs. Drain-Source Voltage (0 - 1000V)

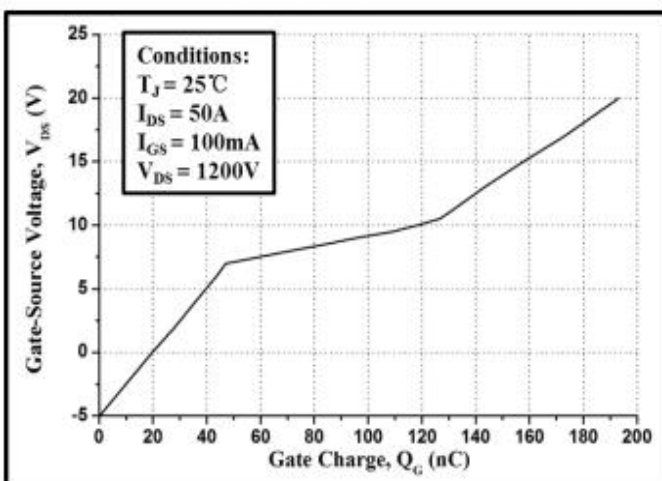


Figure 17. Gate Charge Characteristic

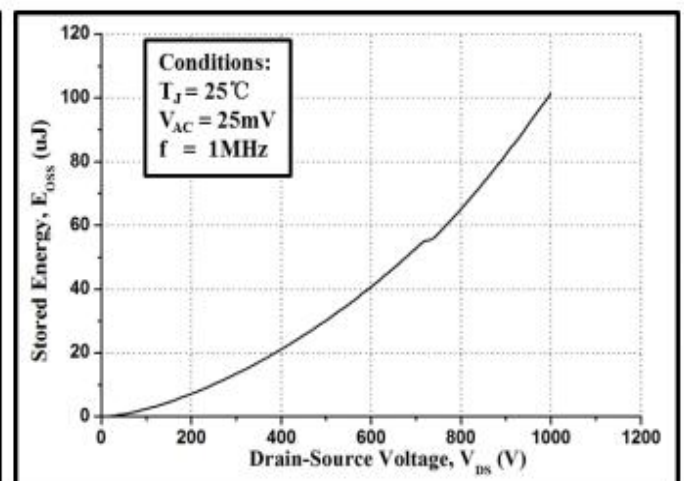
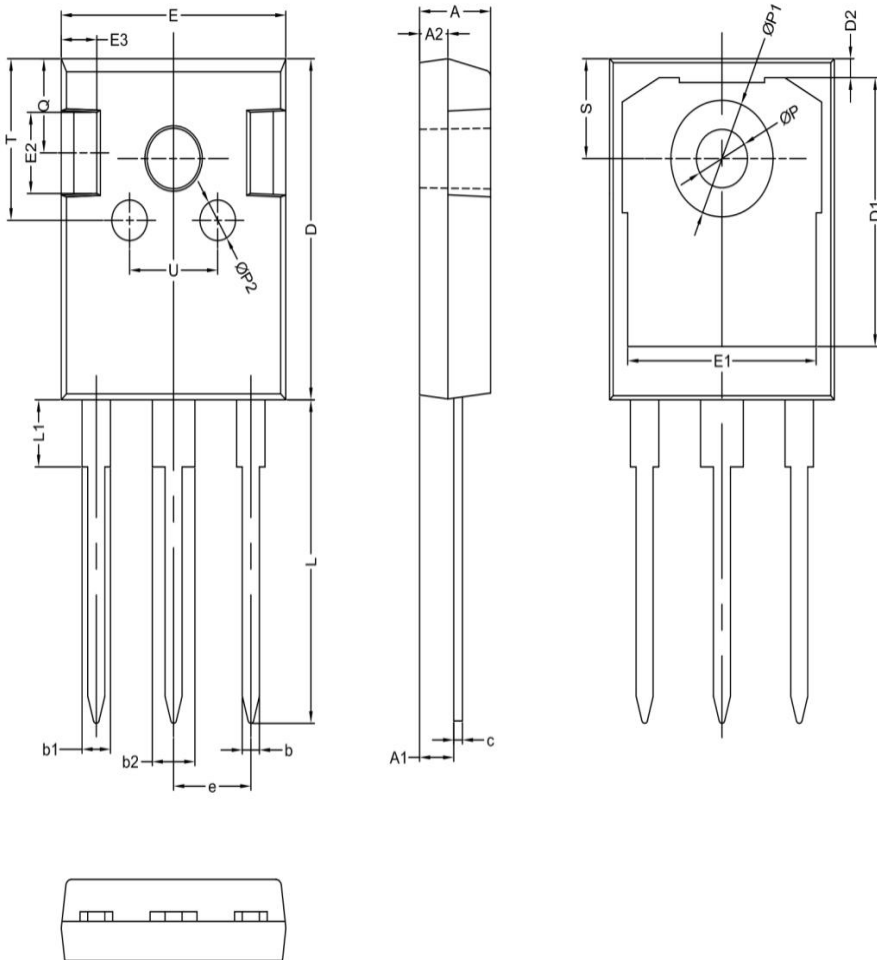


Figure 18. Output Capacitor Stored Energy

Package outline drawing(TO-247-3 Unit: mm)



符号	机械尺寸/mm		
	最小值	典型值	最大值
A	4.80	5.00	5.20
A1	2.21	2.41	2.61
A2	1.90	2.00	2.10
b	1.10	1.20	1.35
b1		2.00	
b2		3.00	
c	0.55	0.60	0.75
D	20.80	21.00	21.20
D1		16.55	
D2		1.20	
E	15.60	15.80	16.0
E1		13.30	
E2		5.00	
E3		2.50	
e		5.44	
L	19.42	19.92	20.42
L1		4.13	
P	3.50	3.60	3.70
P1	-	-	7.40
P2		2.50	
Q		5.80	
S	6.05	6.15	6.25
T		10.00	
U		6.20	

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