

VDS	RDS(on)	ID@25℃
1700V	1000mΩ	5A

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:

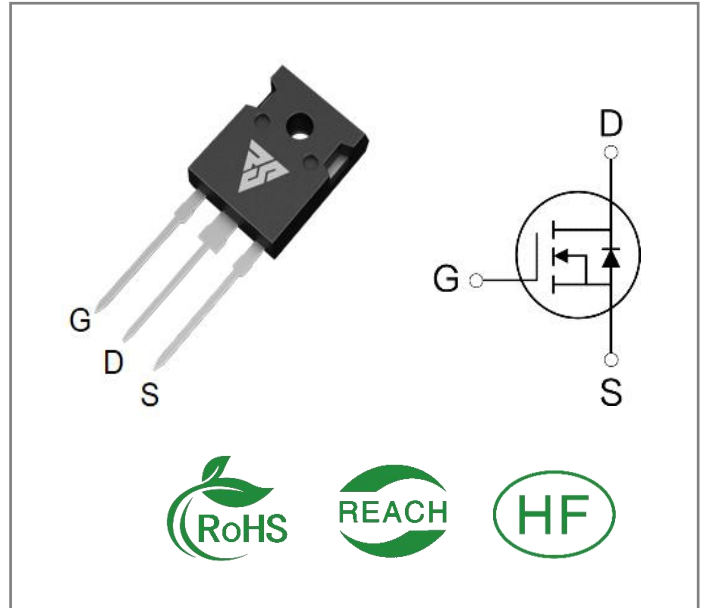
- Higher System Efficiency
- Reduced Cooling Requirements
- Increased Power Density
- Increased System Switching Frequency

Ordering Information

Part Number	Package	Marking	Packing	Qty.
RSM1701K0W	TO-247-3	RSM1701K0W	Tube	30 PCS

Maximum Ratings (TJ= 25℃ 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/+25	V	Absolute maximum values	
VGSop	Gate - Source Voltage	-5/+20	V	Recommended operational values	
ID	Continuous Drain Current	5 3.5	A	VGS=20V, TC =25℃ VGS=20V, TC =100℃	
ID(pulse)	Pulsed Drain Current	6	A	Pulse width tp limited by TJmax	
PD	Power Dissipation	69	W	TC =25℃, TJ =150℃	
TL	Solder Temperature	260	℃		
TJ, Tstg	Operating Junction and Storage Temperature	-55 to +150	℃		



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	V _{GS} =0V, I _D =100μA	
V _{GS(th)}	Gate Threshold Voltage	2.5	3.0	4.5	V	V _{GS} = V _{DS} , I _{DS} =1mA, T _C =25°C	
			2.2		V	V _{GS} = V _{DS} , I _{DS} =1mA, T _C =150°C	
I _{DSS}	Zero Gate Voltage Drain Current		1	100	μA	V _{DS} = 1700V, V _{GS} =0V	
I _{GSS}	Gate-Source Leakage Current			250	nA	V _{GS} =25V, V _{DS} = 0V	
R _{DS(on)}	Drain-Source on-state Resistance		1000	1300	mΩ	V _{GS} =20V, I _D =2A, T _C =25°C	
			1500			V _{GS} =20V, I _D =2A, T _C =150°C	
C _{iss}	Input Capacitance		186		pF	V _{GS} =0V, V _{DS} =1000 V, f=1MHz, V _{AC} =25 mV	
C _{oss}	Output Capacitance		12				
C _{rss}	Reverse Transfer Capacitance		1.6				
E _{ON}	Turn-On Switching Energy		48		μJ	V _{DS} =1200V, V _{GS} =-5/20V, I _D = 2A, R _{G(ext)} = 2.5Ω, L= 1500μH	
E _{OFF}	Turn-Off Energy		18				
t _{d(on)}	Turn-On Delay Time		5.2		ns	V _{DS} =1200V, V _{GS} =-5/20 V, I _D = 2A, R _{G(ext)} =2.5 Ω , R _L =600Ω	
t _r	Rise Time		9.4				
t _{d(off)}	Turn-Off Delay Time		13.2				
t _f	Fall Time		22				
R _{G(int)}	Internal Gate Resistance		22		Ω	f=1 MHz, V _{AC} =25mV	
Q _{gs}	Gate to Source Charge		5.2		nC	V _{DS} =1200V, V _{GS} =-5/20V, I _D =2A	
Q _{gd}	Gate to Drain Charge		7.3		nC		
Q _g	Total Gate Charge		21.8				

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

Symbol	Parameter	Typ.	Max	Unit	Test Conditions	Note
VSD	Diode Forward Voltage	4.2		V	VGS=-5V, ISD = 1 A, TJ = 25°C	
		3.9		V	VGS=-5V, ISD= 1 A, TJ= 150°C	
IS	Continuous Diode Forward Current		4	A	VGS=-5V, TC= 25°C	
trr	Reverse Recovery time	25		ns	ISD= 2 A, VR = 1200V	
Qrr	Reverse Recovery Charge	15		nC		
Irrm	Peak Reverse Recovery Current	2.8		A		

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

Symbol	Parameter	Typ.	Unit	Test Conditions	Note
RθJC	Thermal Resistance from Junction to Case	1.8	°C/W		
RθJA	Thermal Resistance From Junction to Ambient	40			

Typical Feature Curve

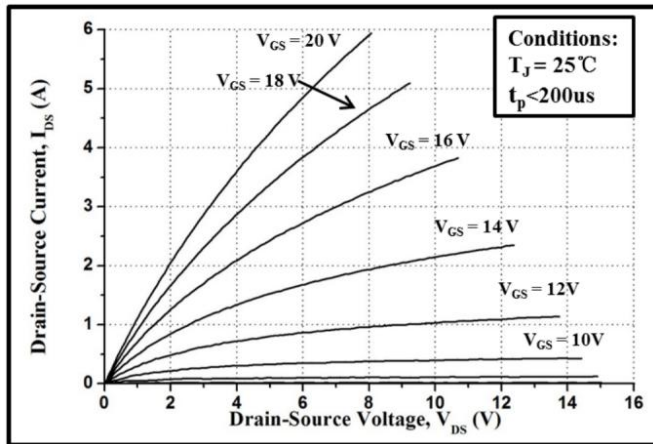


Figure 1. Typical Output Characteristics $T_J = 25^\circ\text{C}$

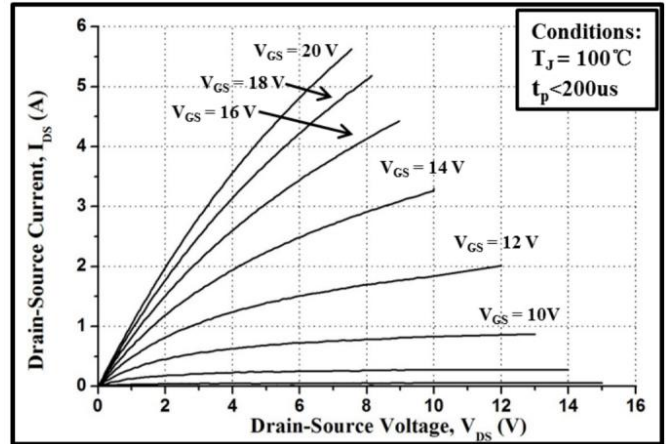


Figure 2. Typical Output Characteristics $T_J = 100^\circ\text{C}$

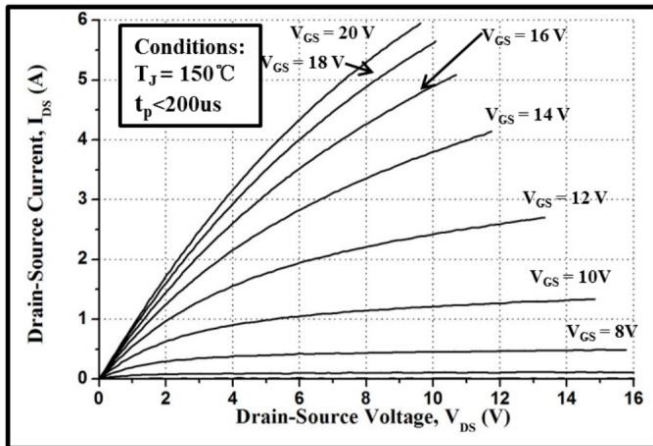


Figure 3. Typical Output Characteristics $T_J = 150^\circ\text{C}$

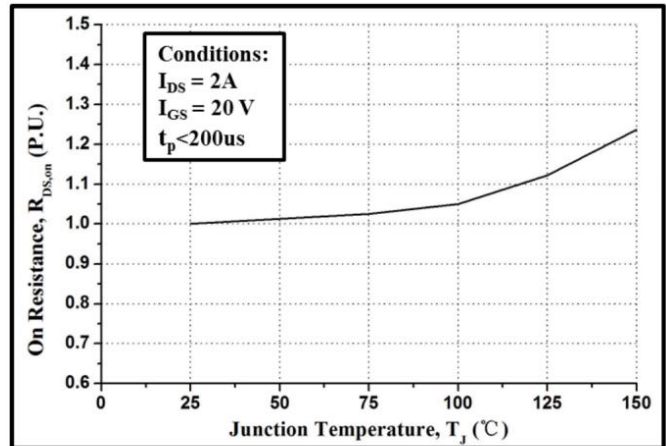


Figure 4. Normalized On-Resistance vs. Temperature

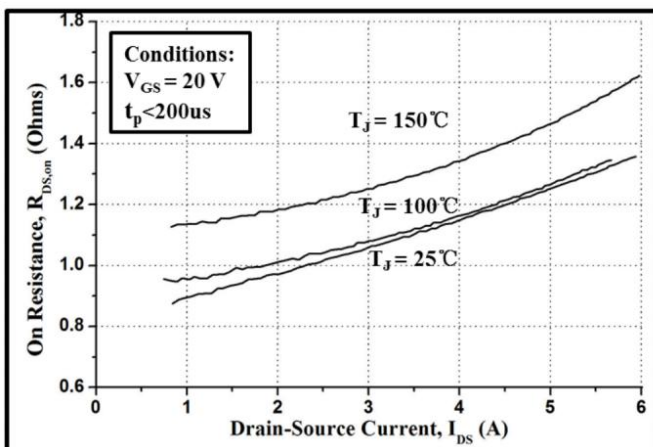


Figure 5. On-Resistance vs. Drain Current

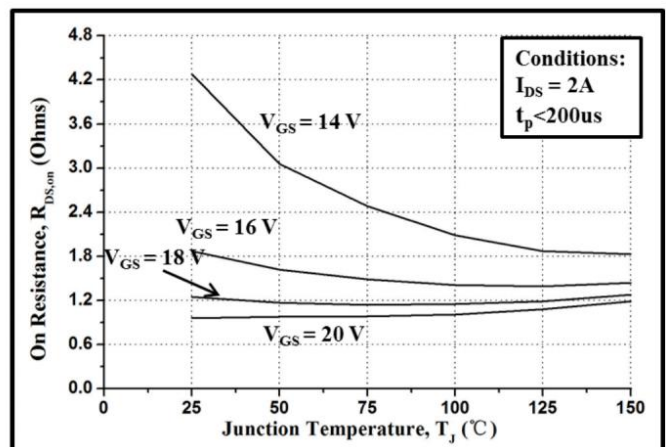


Figure 6. On-Resistance vs. Temperature

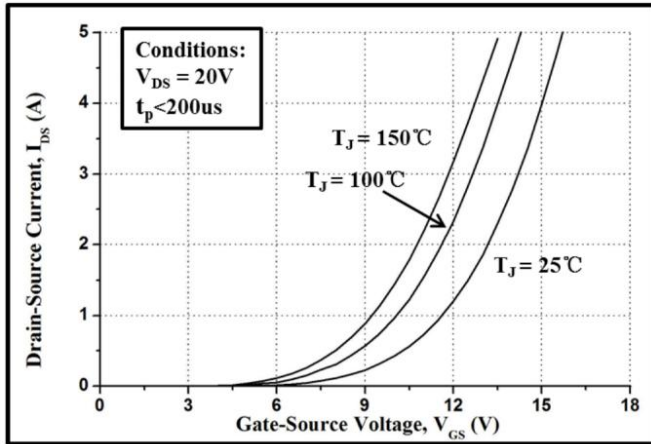


Figure 7. Typical Transfer Characteristics

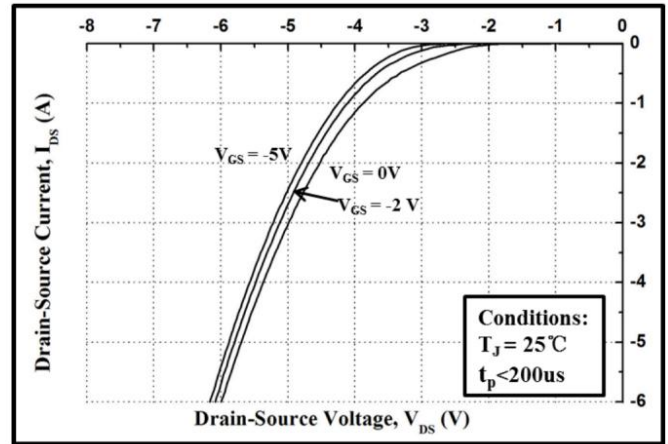


Figure 8. Body Diode Characteristics at 25°C

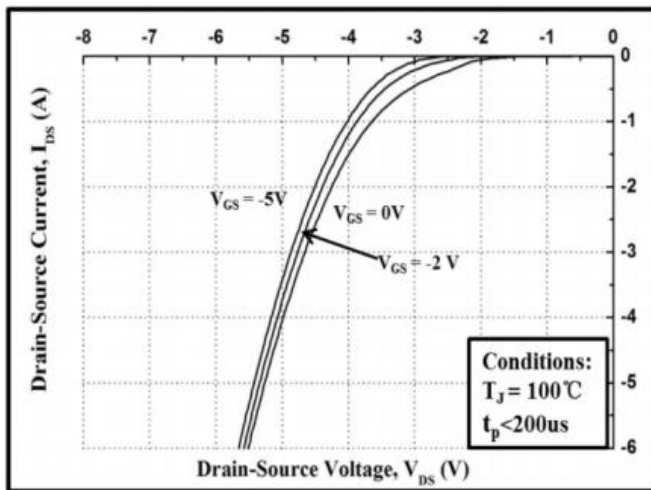


Figure 9. Body Diode Characteristics at 100°C

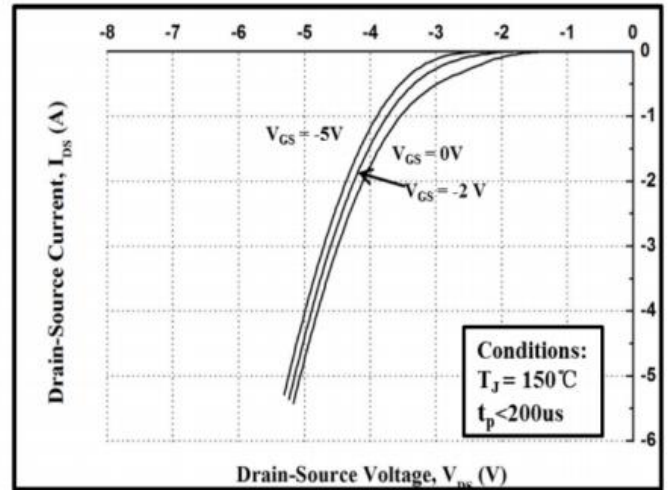


Figure 10. Body Diode Characteristics at 150°C

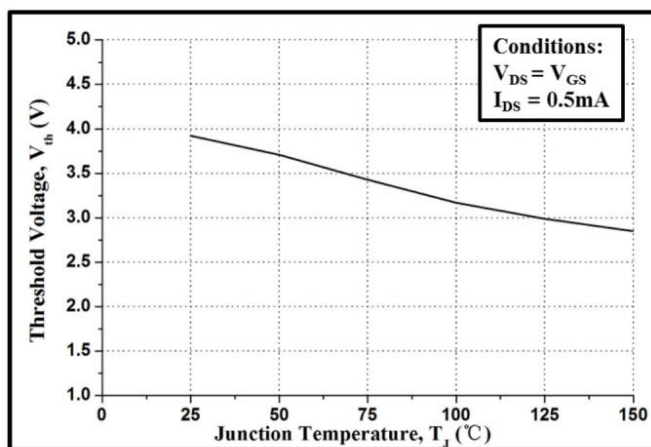


Figure 11. Gate Threshold Voltage vs. Temperature

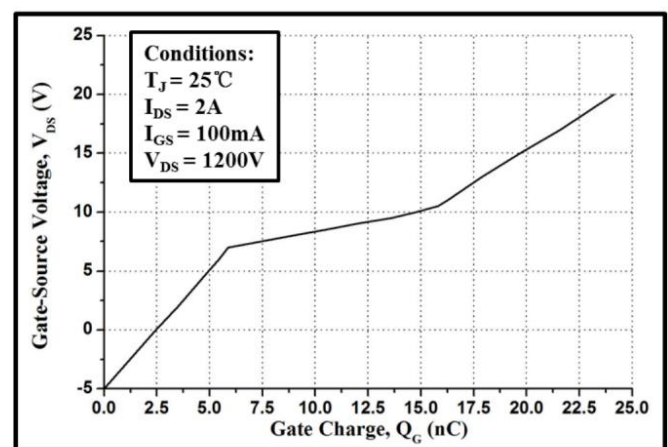


Figure 12. Gate Charge Characteristic

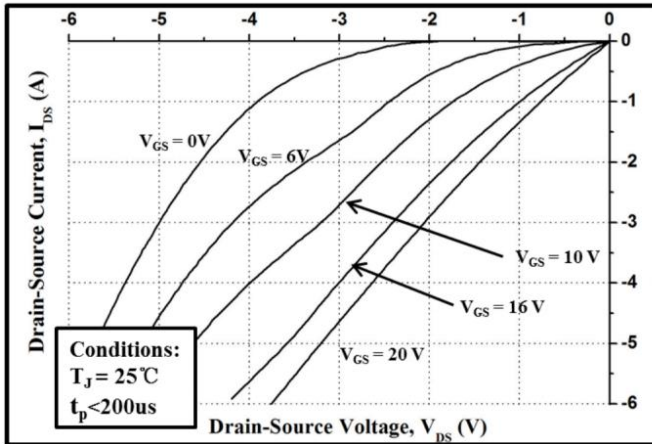


Figure 13. 3rd Quadrant Characteristics at 25°C

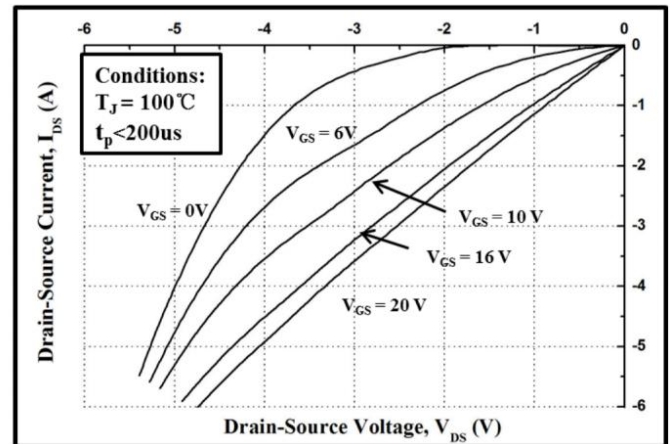


Figure 14. 3rd Quadrant Characteristics at 100°C

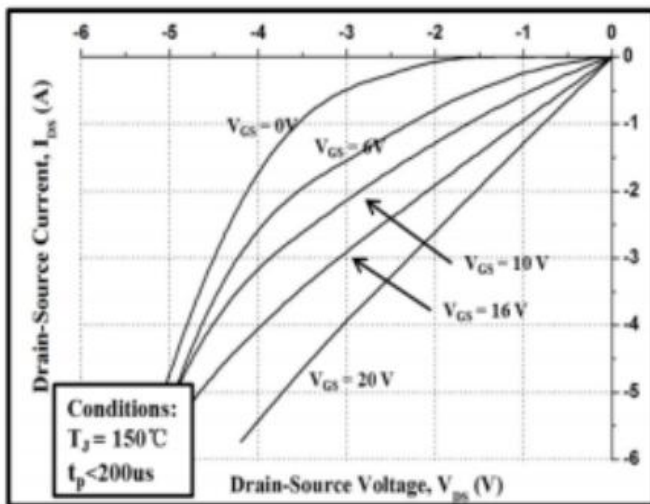


Figure 15. 3rd Quadrant Characteristics at 150°C

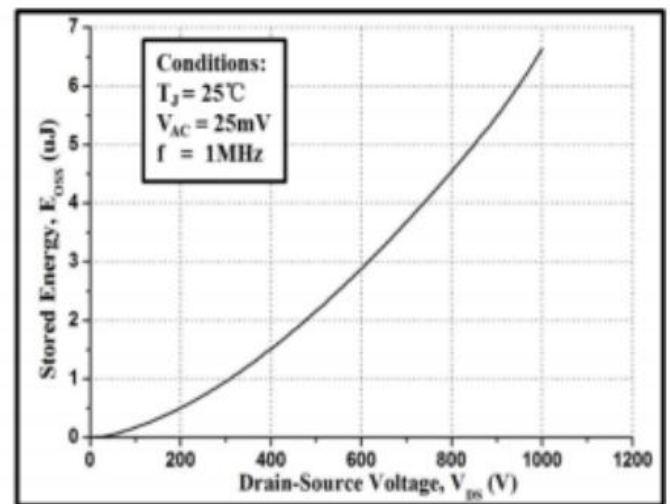


Figure 16. Output Capacitor Stored Energy

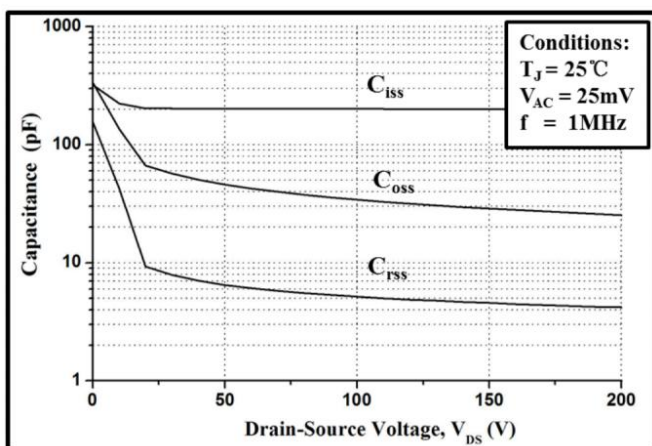


Figure 17. Capacitances vs. Drain-Source Voltage

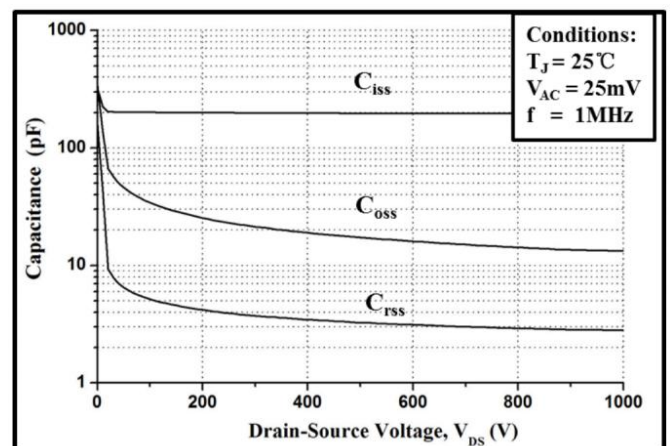
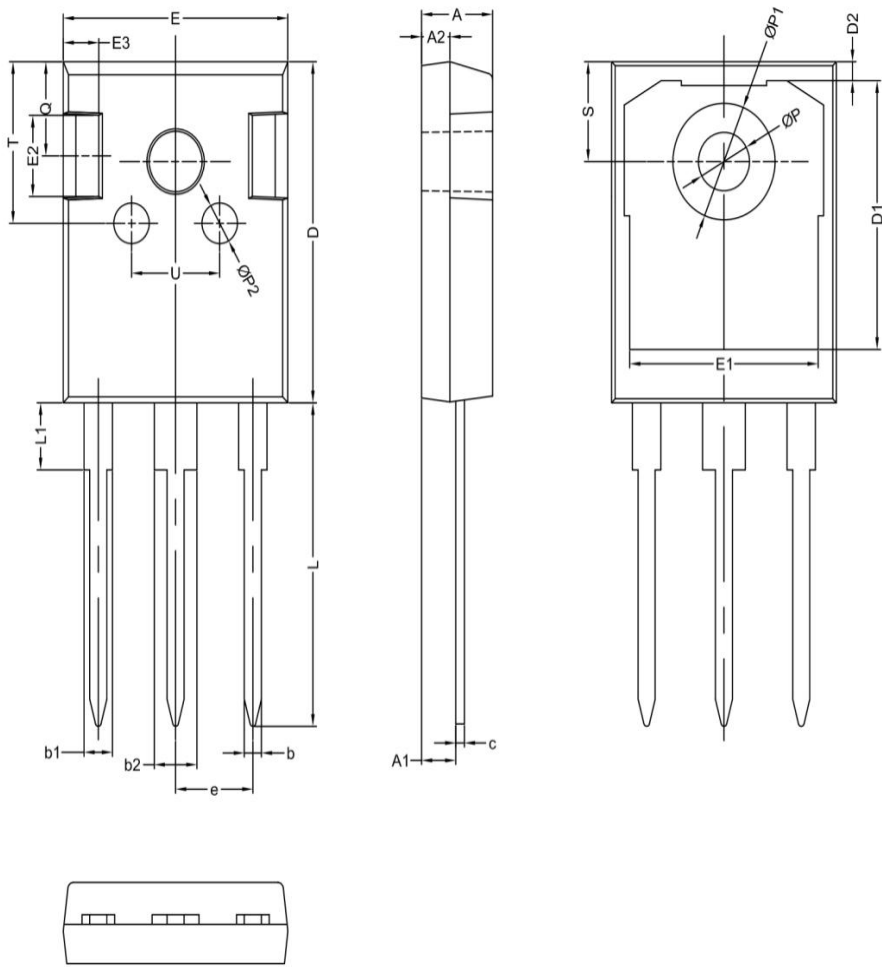


Figure 18. Capacitances vs. Drain-Source Voltage

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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