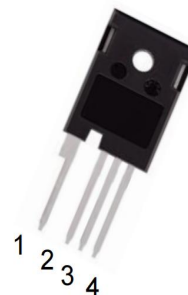




1.Features

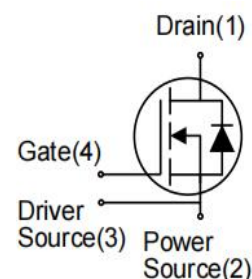
- V_{DS} 1200V
- I_D 204A
- $R_{DS(ON)}$ 10.5 mΩ@ $V_{GS}=18V$

TO-247-4



2.Mechanical Data

- Case:Molded Plastic,TO-247-4;
- Epoxy:UL 94V-0 rate flame retardant
- Terminals:Plated Leads Solderable per MIL-STD-750,Method-2026.
- Marking: marked on body.
- Mounting Position : Any.



3.Maximum Ratings and Electrical Characteristics

Rating at 25°C Ambient temperature unless otherwise specified

Characteristics		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DS}	1200	V
Gate-Source Voltage		V_{GSmax}	-10/+25	V
Recommend Gate-Source Voltage		V_{GSop}	-4/+15 -4/+18	V
Drain Current Continuous	$V_{GS} = 18V, T_C=25^{\circ}C$	I_D	204	A
	$V_{GS} = 18V, T_C=100^{\circ}C$		144	
PeakDrain Current @Pulse with tp limited by Tjmax at 1 ms		I_{DM}	403	A
Power Dissipation @ $T_C = 25^{\circ}C, T_J = 175^{\circ}C$		P_{tot}	789	W
Maximum Junction Temperature		T_J	-55~175	°C
Storage Temperature Range		T_{stg}	-55~175	°C
Thermal Resistance from Junction to Case		$R_{th(j-c)}$	0.19	°C/W
Thermal resistance from Junction to Ambient		$R_{th(j-a)}$	40	°C/W



Characteristics		Symbol	Test conditions	Min	TYP	Max	Unit
Static Characteristics							
Drain -Source Breakdown Voltage		BV _{DSS}	V _{GS} = 0V,I _D =0.1mA	1200	-	-	V
Gate Threshold Voltage	T _J =25°C	V _{GS (th)}	V _{GS} = V _{DS} , I _D =30mA	-	2.8	-	V
	T _J =175°C			-	2.0	-	
Gate-Source Leakage Current		I _{GSS}	V _{GS} = 18V,V _{DS} =0V	-	-	250	nA
Zero Gate Voltage Drain Current		I _{DSS}	V _{DS} = 1200V,V _{GS} = 0V	-	1	50	uA
Drain-Source On-State Resistance	T _J =25°C	R _{DS(on)}	V _{GS} =15V, I _D =90A	-	12.5	-	mΩ
	T _J =175°C			-	21	-	
	T _J =25°C		V _{GS} =18V, I _D =90A	-	10.5	15	
	T _J =175°C			-	19.8	-	
Transconductance	T _J =25°C	gfs	V _{DS} = 15V, I _D = 90A		65		S
	T _J =175°C				64		
Dynamic Characteristics							
Input Capacitance		C _{iss}	V _{DS} =1000V V _{GS} =0V f = 100 KHz, V _{AC} = 25mV	-	7520	-	pF
Output Capacitance		C _{oss}		-	277	-	
Reverse Transfer Capacitance		C _{rss}		-	24	-	
Gate-Source Charge		Q _{gs}	V _{DS} =800V, V _{GS} =-4/18V I _D =50A	-	106	-	nC
Gate-Drain Charge		Q _{gd}		-	89	-	
Total Gate Charge		Q _g		-	324	-	
nternal Gate Resistance		R _{G(int)}	f=1 MHz, V _{AC} = 25mV	-	1.3	-	Ω
Drain-Source Diode Characteristics							
Diode Forward Voltage	T _J =25°C	V _{SD}	V _{GS} =-4V, I _{SD} =45A	-	3.8	-	V
	T _J =175°C			-	3.4	-	
Continuous Diode Forward		I _S	V _{GS} =-4V	-	179	-	A
Diode pulse Current @pulse width tp limited by Tjmax		I _{S, pulse}	V _{GS} = -4V	-	433	-	



4. Rating And Characteristic Curves

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

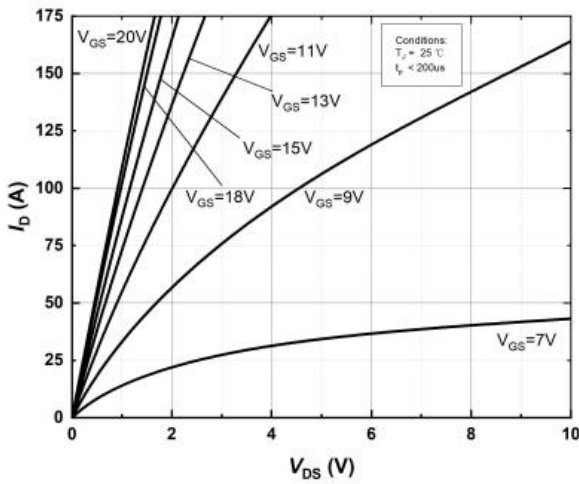


Fig.2 Output Characteristics $T_J=175^{\circ}\text{C}$

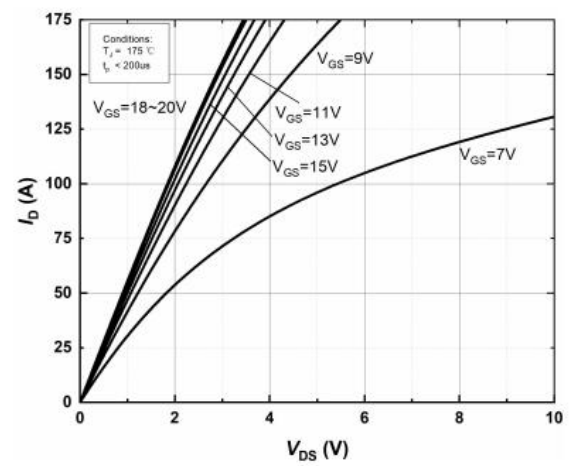


Fig.3 Normalized On-Resistance vs. Temperature

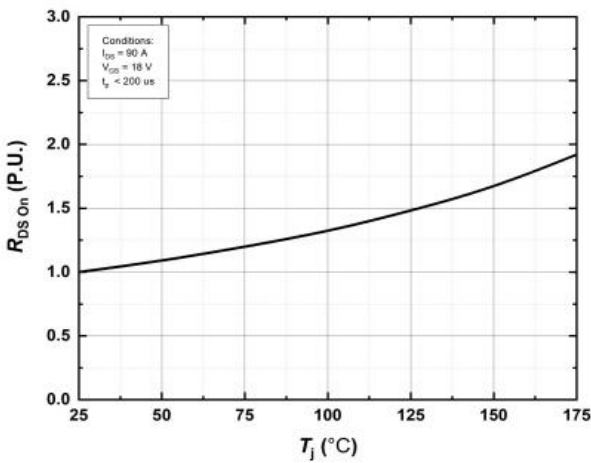


Fig.4 On-Resistance vs. Drain current for Various Temperature

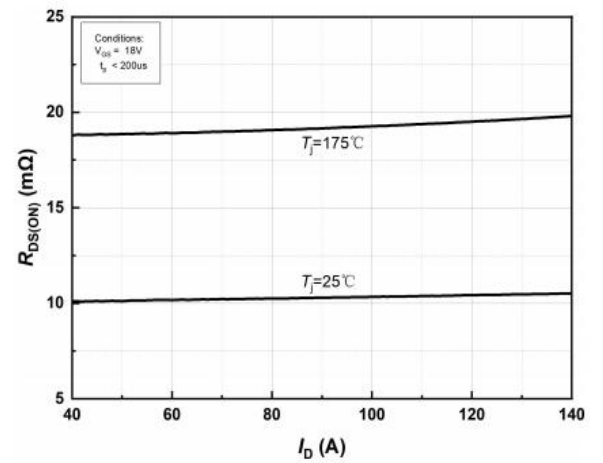


Fig.5 On-Resistance vs. Temperature for Various Gate Voltage

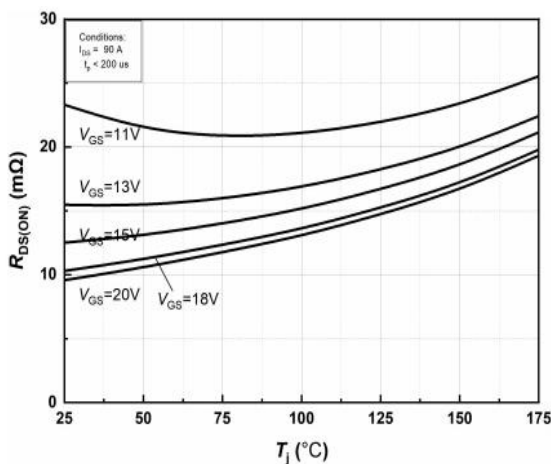


Fig.6 Transfer Characteristics for Various Junction Temperatures

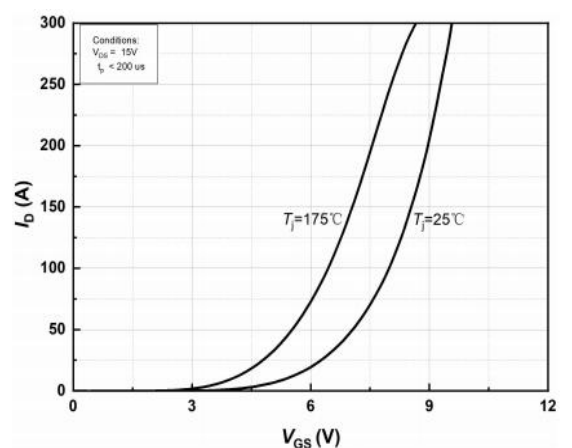




Fig.7 Body Diode Characteristics at $T_j=25^\circ\text{C}$

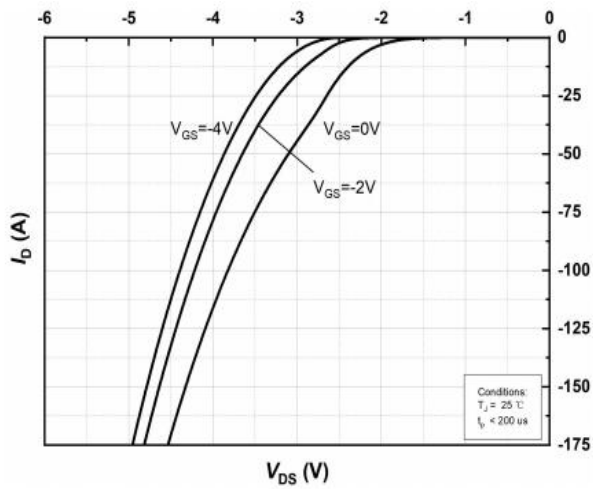


Fig.8 Body Diode Characteristics at $T_j=175^\circ\text{C}$

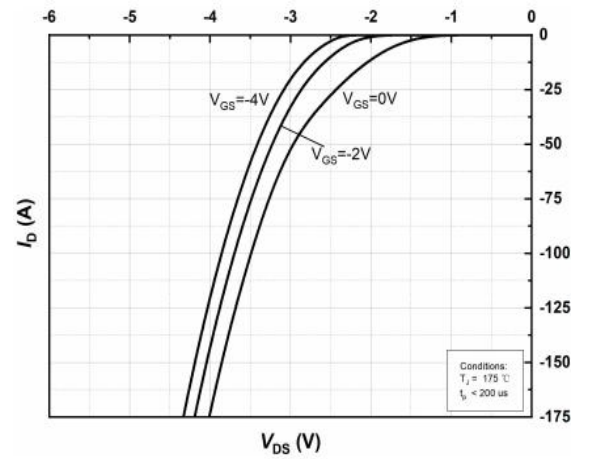


Fig.9 Threshold Voltage vs. Temperature

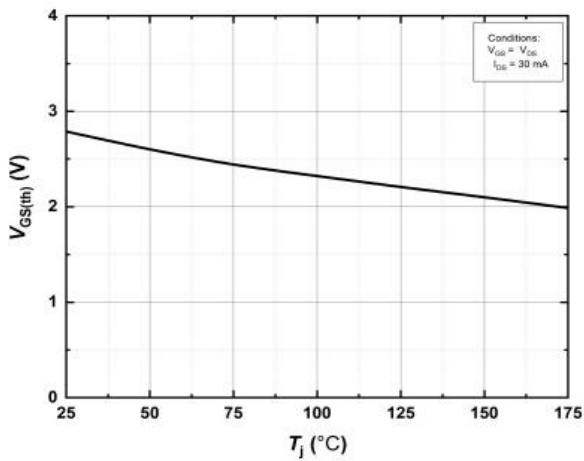


Fig.10 Gate Charge Characteristics

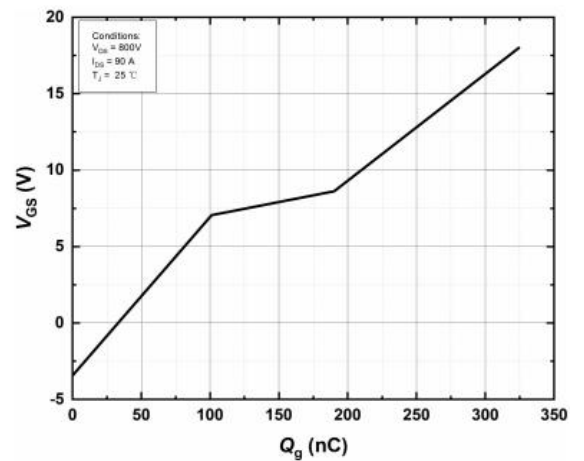


Fig.11 3rd Quadrant Characteristic at $T_j=25^\circ\text{C}$

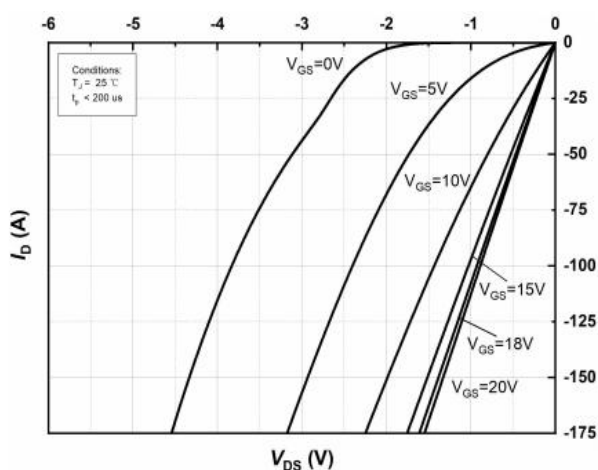


Fig.12 3rd Quadrant Characteristic at $T_j=175^\circ\text{C}$

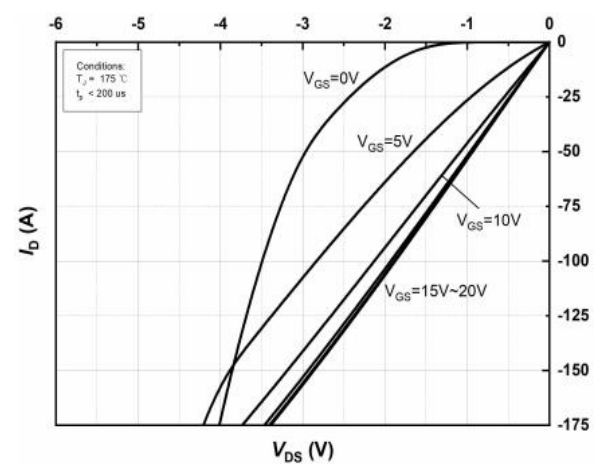




Fig.13 Capacitances vs. Drain-Source Voltage (0 – 1000V)

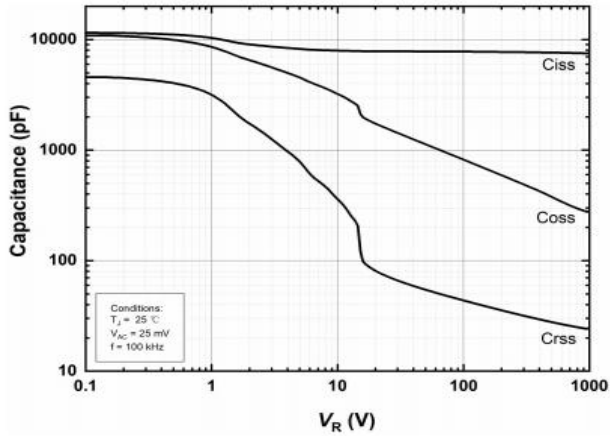


Fig.14. Continuous Drain Current Derating vs Case Temperature

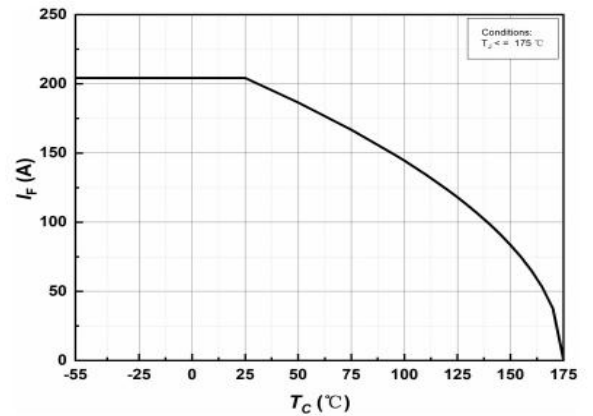


Fig.15 Transient Thermal Impedance (Junction – Case)

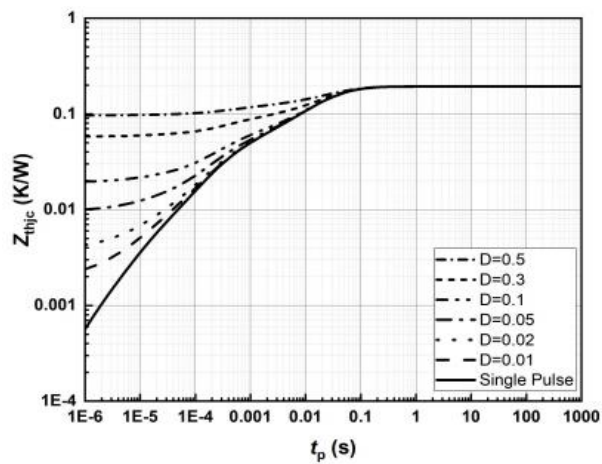


Fig.16 Maximum Power Dissipation Derating vs. Case Temperature

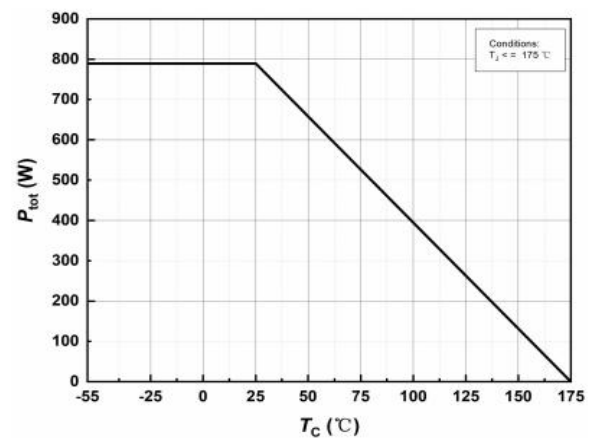


Fig.17 Output Capacitor Stored Energy

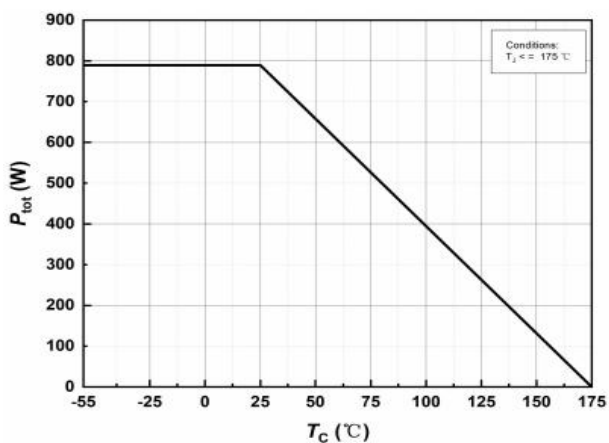
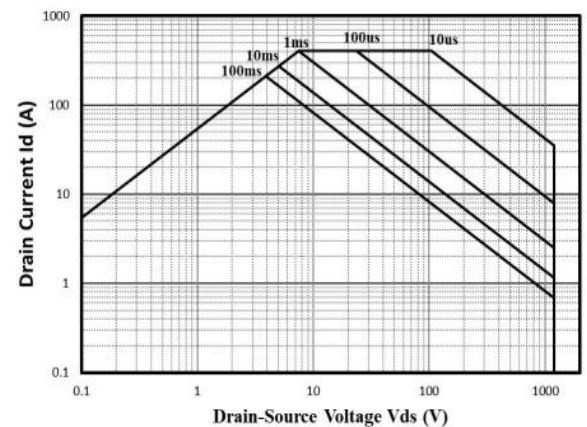
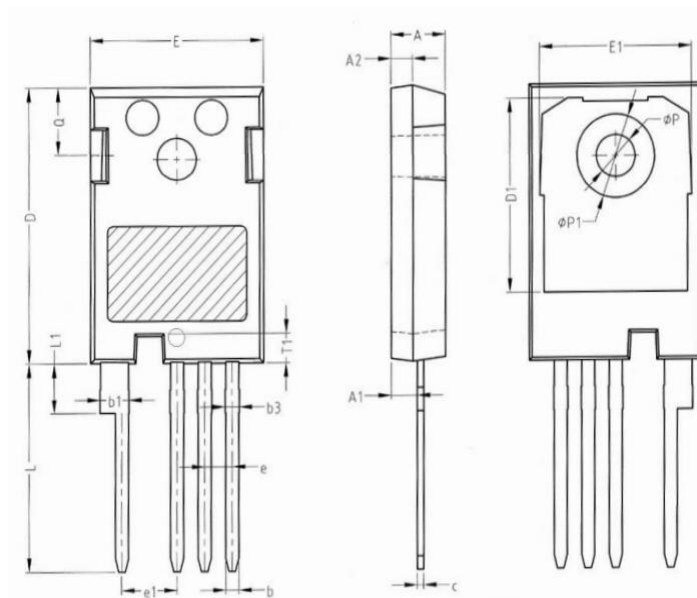


Fig.18 Safe Operating Area



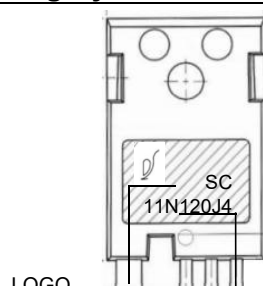


5.Dimensions



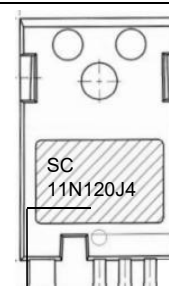
DIM	Unit(inch)		Unit(mm)	
	MIN	MAX	MIN	MAX
A	0.189	0.205	4.80	5.21
A1	0.087	0.103	2.21	2.61
A2	0.071	0.087	1.80	2.20
b	0.042	0.052	1.06	1.33
b1	0.092	0.116	2.33	2.94
b3	0.042	0.063	1.07	1.60
c	0.020	0.030	0.51	0.75
D	0.917	0.929	23.30	23.60
D1	0.640	0.663	16.25	16.85
E	0.620	0.635	15.74	16.14
E1	0.528	0.564	13.40	14.32
T1	0.093	0.104	2.35	2.65
e	2.54 BSC			
e1	5.08 BSC			
Q	0.216	0.240	5.49	6.09
L	0.680	0.704	17.27	17.87
L1	0.157	0.173	3.99	4.39
θp	0.134	0.150	3.40	3.80
θp1	7.19 REF			

6. Part Marking System



LOGO

Marking Code



Marking Code

7. Package Information

Package	Packing Type	Quantity(pcs)
TO-247-4L	Tube	25



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