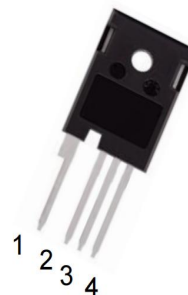




1.Features

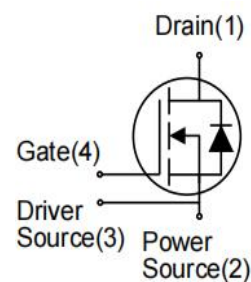
- V_{DS} 1200V
- I_D 74A
- $R_{DS(ON)}$ 37 m Ω

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
Drain Current Continuous	$T_C=25^{\circ}\text{C}$	I_D	74	A
	$T_C=100^{\circ}\text{C}$		52	
Peak Drain Current		I_{DM}	150	A
Gate-Source Voltage		V_{GSmax}	-8/+22	V
Recommend Gate-Source Voltage		V_{GSop}	-4/+18	V
Power Dissipation	$T_C=25^{\circ}\text{C}$	P_{tot}	312	W
	$T_C=100^{\circ}\text{C}$		156	
Maximum Junction Temperature		T_J	-40~175	$^{\circ}\text{C}$
Storage Temperature Range		T_{stg}	-40~175	$^{\circ}\text{C}$
Thermal Resistance from Junction to Case		$R_{th(j-c)}$	0.48	$^{\circ}\text{C/W}$



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
Zero Gate Voltage Drain Current		I _{DSS}	V _{DS} = 1200V,V _{GS} = 0V	-	1	-	uA
Gate-Source Leakage Current		I _{GSS}	V _{GS} = 0V,V _{DS} =18V	-	-	250	nA
Gate Threshold Voltage	T _J =25°C	V _{GS (th)}	V _{GS} = V _{DS} , I _D =10μA	2.0	2.60	4.0	V
	T _J =175°C			-	2.00	-	
Drain-Source On-State Resistance	T _J =25°C	R _{DS(on)}	V _{GS} =18V, I _D =40A	-	37	-	mΩ
	T _J =175°C			-	47	-	
Dynamic Characteristics							
Input Capacitance		C _{iss}	V _{DS} =1000V V _{GS} =0V f = 100KHz	-	2975	-	pF
Output Capacitance		C _{oss}		-	119	-	
Reverse Transfer Capacitance		C _{rss}		-	12	-	
Total Gate Charge		Q _g	V _{DS} =800V, V _{GS} =-4/18V I _D =40A	-	117	-	nC
Gate-Source Charge		Q _{gs}		-	38	-	
Gate-Drain Charge		Q _{gd}		-	27	-	
Switching Characteristics							
Turn-on Delay Time		t _{d(on)}	V _{DD} =800V, V _{GS} =-4V/18V I _D =40A ,R _G = 2.5Ω	-	18	-	ns
Turn-on Rise Time		t _r		-	21	-	
Turn-off Delay Time		t _{d(off)}		-	31	-	
Turn-off Fail Time		t _f		-	9	-	
Turn-On Energy		E _{on}		-	485	-	uJ
Turn-Off Energy		E _{off}		-	75	-	
Drain-Source Diode Characteristics							
Diode Forward Voltage	T _J =25°C	V _{SD}	V _{GS} =-4V, I _{SD} =20A	-	5	-	V
	T _J =175°C			-	4.4	-	
Continuous Diode Forward Current	T _J =25°C	I _S	V _{GS} =-4V	-	45	-	A
	T _J =100°C			-	20	-	
Reverse Recovery Time		T _{rr}	V _{GS} =-4V, I _{SD} =40A, V _R =800V, di/dt=3900A/μs	-	19	-	ns
Reverse Recovery Charge		Q _{rr}		-	500	-	nC
Peak reverse recovery current		I _{rrm}		-	50	-	A



4. Rating And Characteristic Curves

Fig.1 Output Characteristics $T_j = -40^\circ\text{C}$

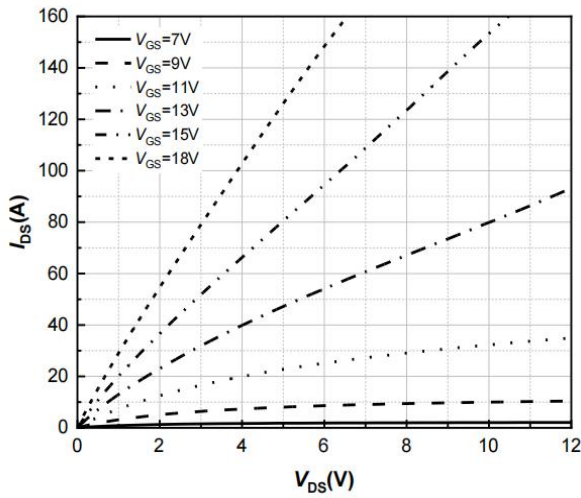


Fig.2 Output Characteristics $T_j = 25^\circ\text{C}$

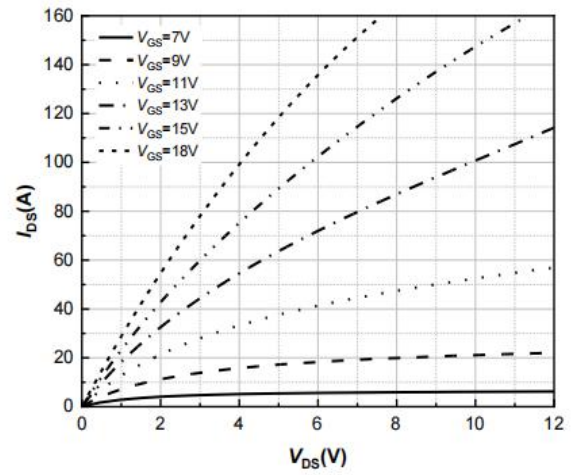


Fig.3 Output Characteristics $T_j = 175^\circ\text{C}$

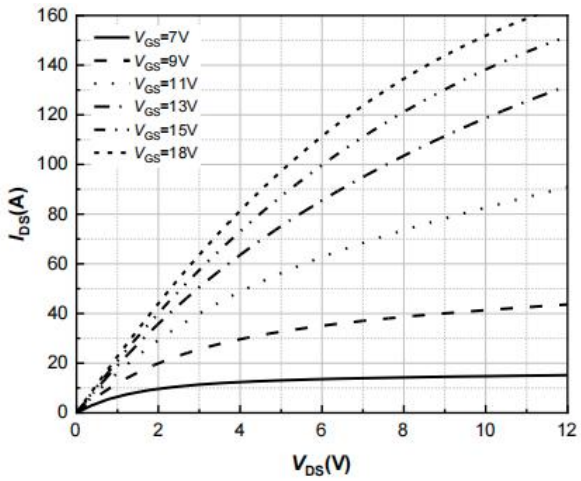


Fig.4 Normalized $R_{DS(on)}$ DS vs. Temperature

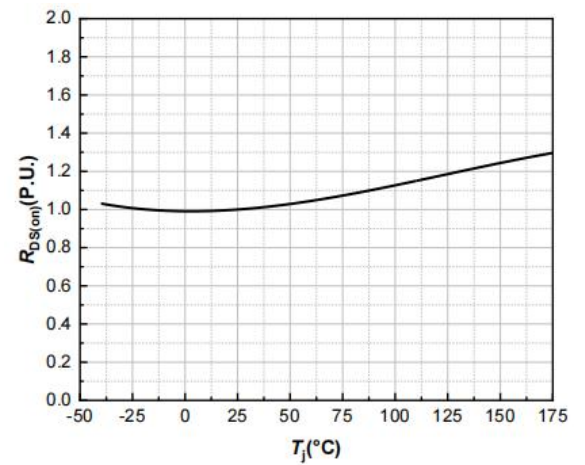


Fig.5 I_{DS} (A) VS $R_{DS(on)}$

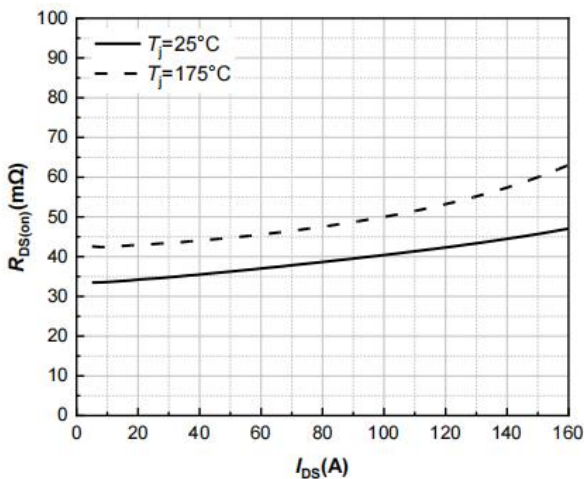


Fig.6 I_{DS} (A) VS T_j ($^\circ\text{C}$)

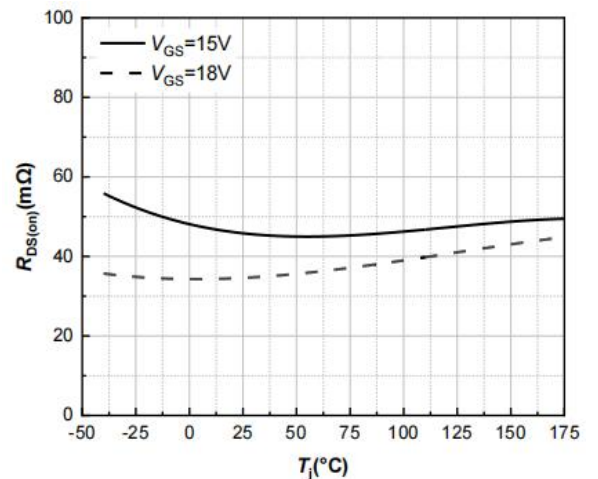




Fig.7 V_{GS} vs I_{DS} (A) $V_{DS}=20V$

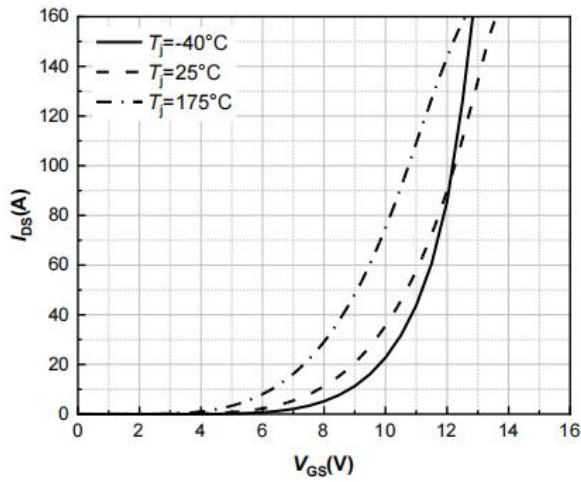


Fig.8 Body Diode Characteristic $T_j = -40^\circ C$

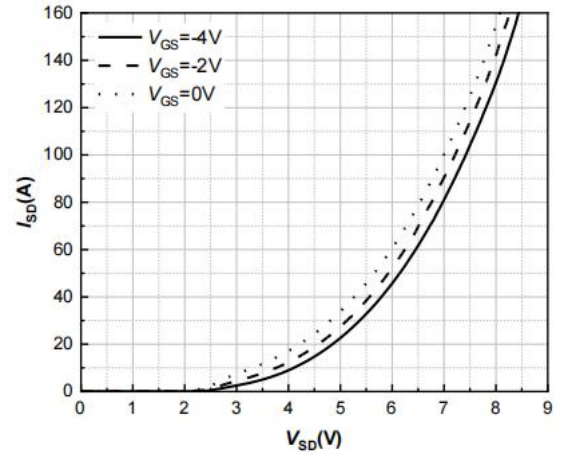


Fig.9 Body Diode Characteristic $T_j = 25^\circ C$

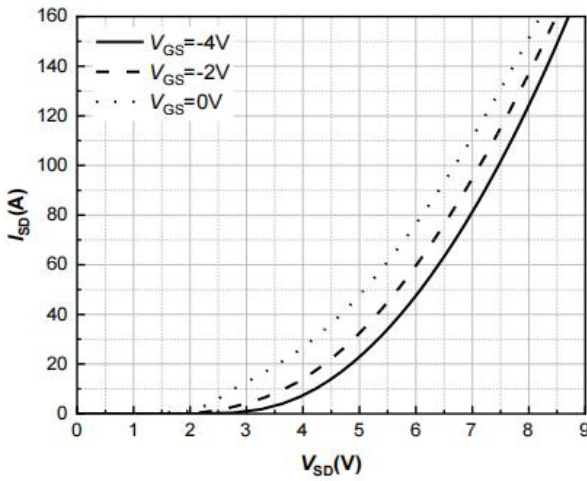


Fig.10 Body Diode Characteristic $T_j = 175^\circ C$

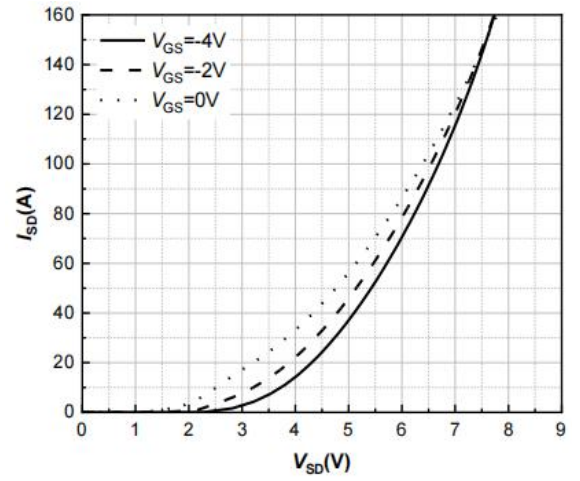


Fig.11 Threshold Voltage vs. Temperature

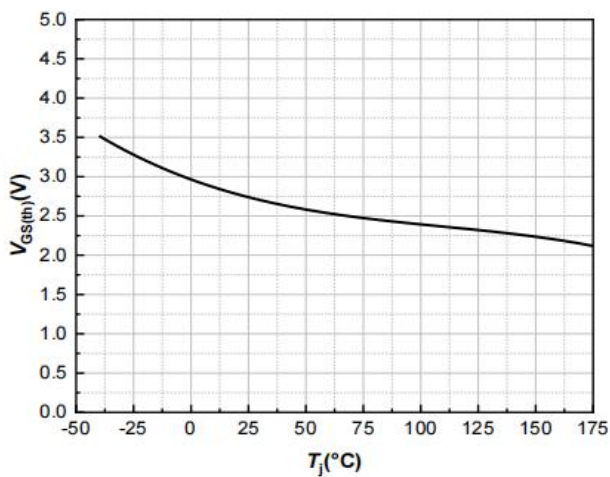


Fig.12 Gate Charge Characteristics

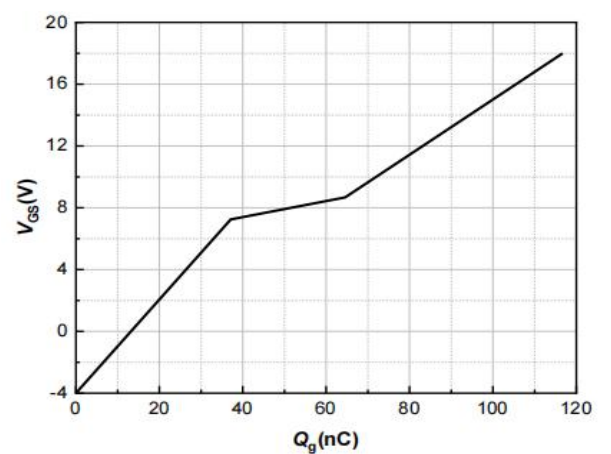




Fig.13 3rd Quadrant Characteristic $T_j = -40^\circ\text{C}$

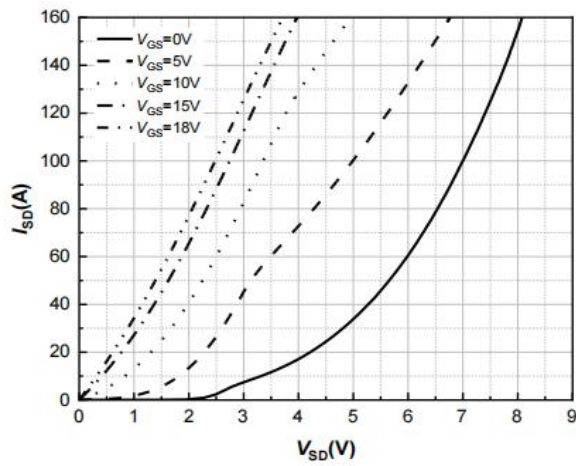


Fig.14. 3rd Quadrant Characteristic $T_j = 25^\circ\text{C}$

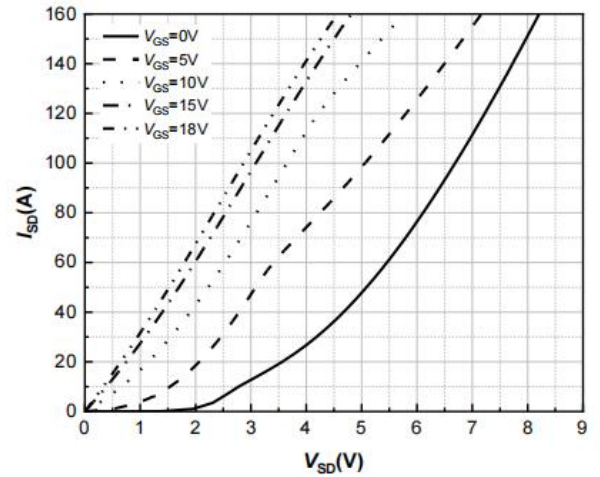


Fig.15 3rd Quadrant Characteristic $T_j = 175^\circ\text{C}$

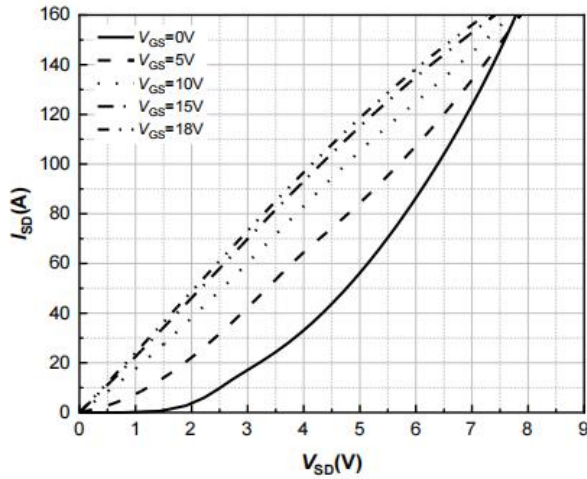


Fig.16 Output Capacitor Stored Energy

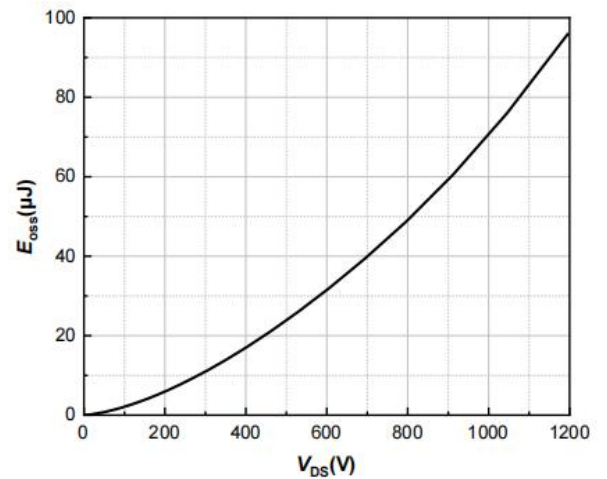


Fig.17 Capacitances vs. Drain-Source

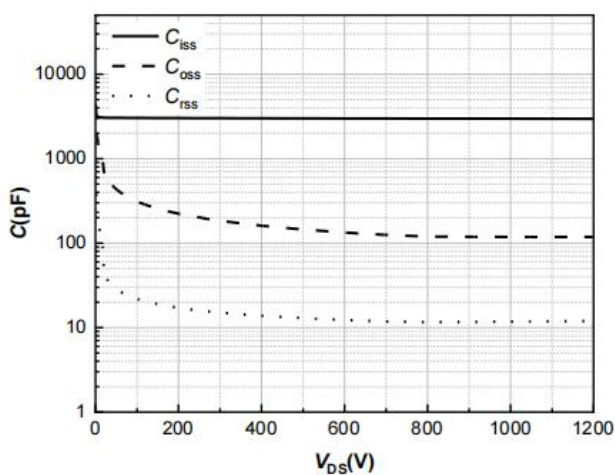


Fig.18 $I_{DS}(A)$ vs. $T_c(^{\circ}\text{C})$

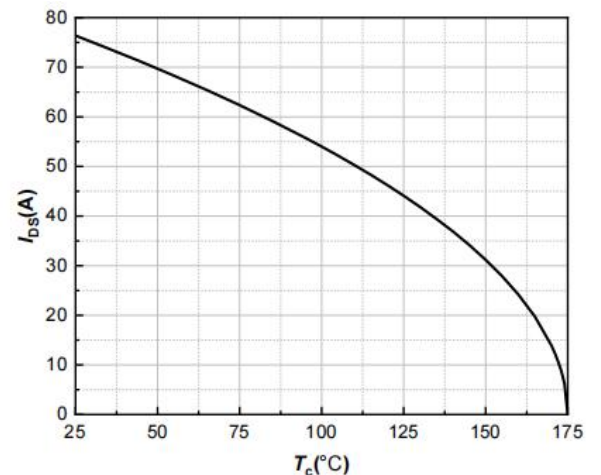




Fig.19 P_{tot} vs $T_c(^{\circ}C)$

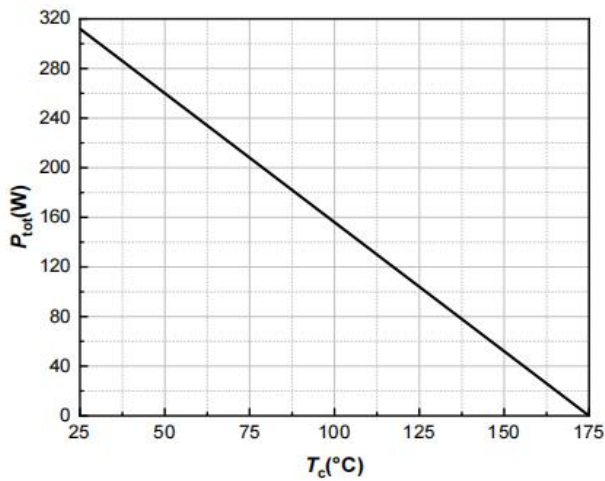


Fig.20 Transient Thermal Impedance

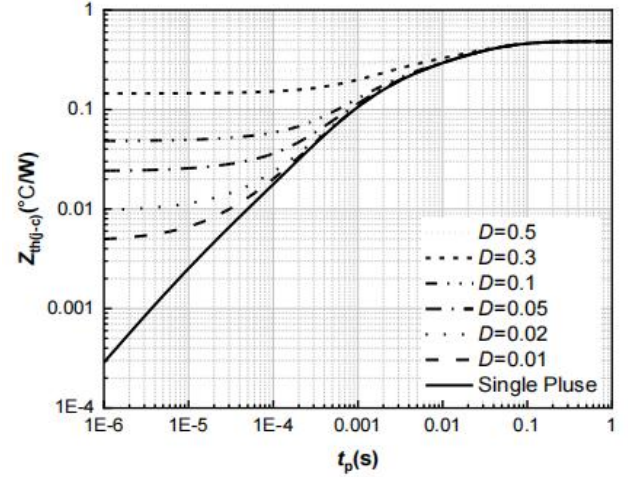


Fig.21 Clamped Inductive Switching Energy vs. Drain Current

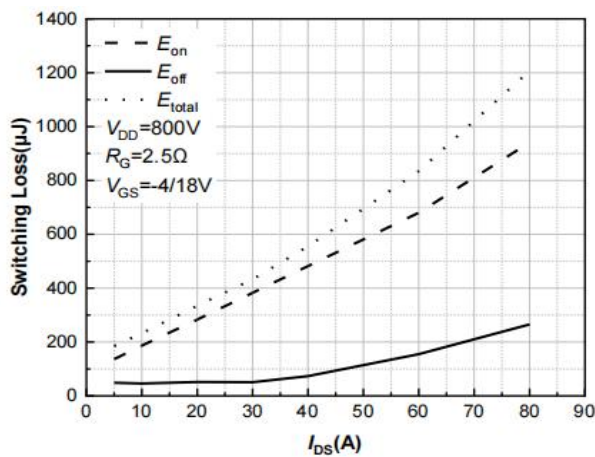


Fig.22 Clamped Inductive Switching Energy vs. R_G

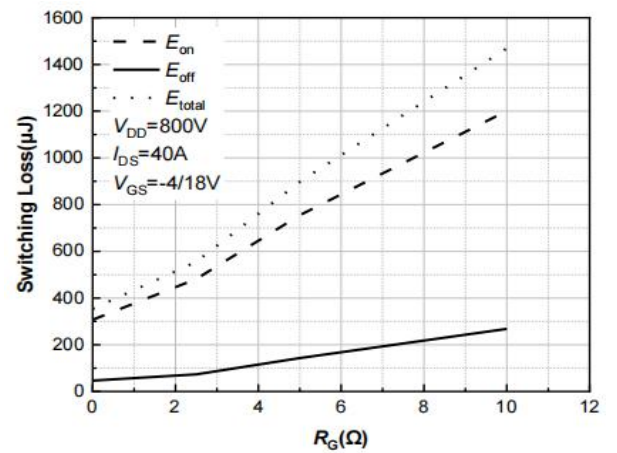


Fig.23 Switching Times vs. R_G

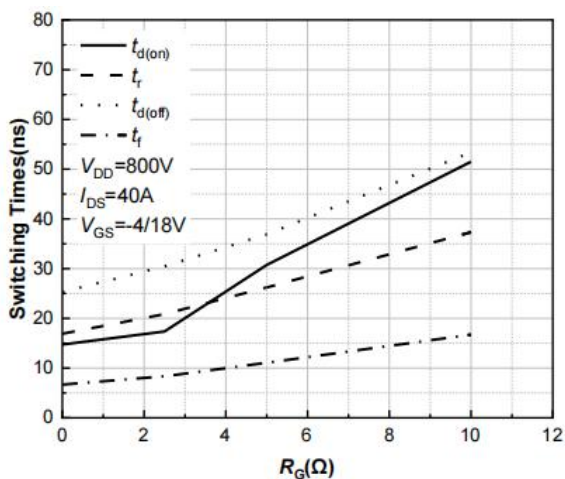
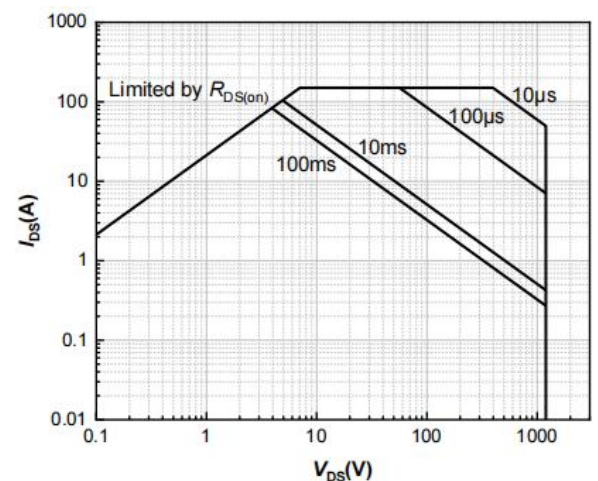
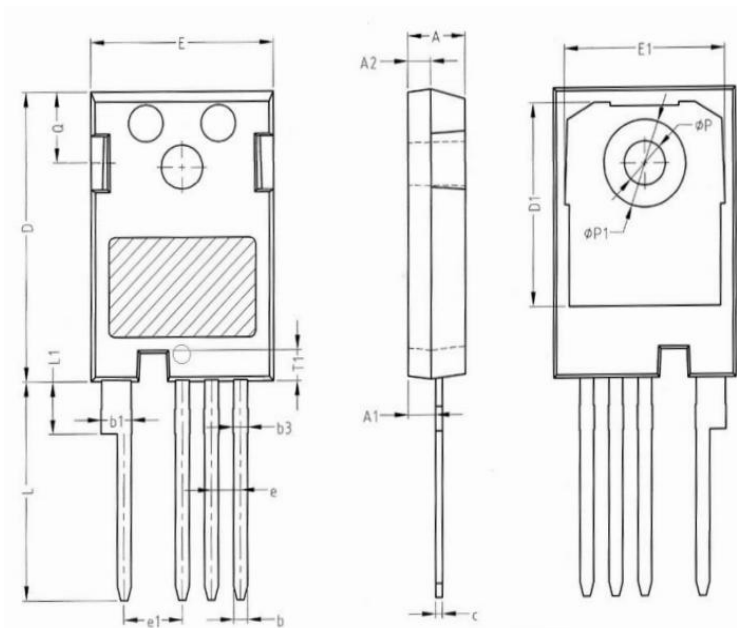


Fig.24 Safe Operating Area





5.Dimensions



DIM	Unit(inch)		Unit(mm)	
	MIN	MAX	MIN	MAX
A	0.189	0.205	4.80	5.20
A1	0.087	0.103	2.21	2.61
A2	0.071	0.087	1.80	2.20
b	0.042	0.054	1.06	1.36
b1	0.092	0.115	2.33	2.93
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	0.540	0.564	13.72	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



7. Package Information

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



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