N Channel Enhancement

- High speed switching
- Very low switching losses
- Fully controllable dv/dt
- High



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(Tc = 25°C unless otherwise specified)

$V_{DS,max}$	Drain source voltage	750	V	V_{GS} = 0V, I_D = 100μA	
$V_{GS,max}$	Gate source voltage	-8 /+22	V	Absolute maximum values	Note1
$V_{GSpulse}$	Gate-source voltage,max. transient voltage	-10 /+25	V	$t_p \leq 0.5\mu s$, D 0.01	
V_{GSop}	Gate source voltage	-4 /+18	V	Recommended operational values	
I_D	Continuous drain current	44 31	A	V_{GS} = 18V, T_C = 25˚C V_{GS} = 18V, T_C = 100˚C	Fig.19
I_D(pulse)	Pulsed drain current	112	A	Pulse width t_P =100μs limited by $T_{J,max}$	Fig.22
P_D	Power dissipation	171	W	T_C = 25˚C,T_J = 175˚C	Fig.20
T_J ,T_{stg}	Operating Junction and storage temperature	-55 to +175	˚C		
T_L	Soldering temperature	260	˚C	1.6mm (0.063”) from case for 10s	
T_M	Mounting torque	1 8.8	Nm lbf-in	M3 or 6-32 sc o ĩ , m " ξ	

(Tc = 25°C unless otherwise specified)

$V_{(BR)DSS}$	Drain-source breakdown voltage	750	-	-	V	V_{GS} = 0V, I_D = 100μA	
$V_{GS(th)}$	Gate threshold voltage	2.3	3.0	3.8	V	V_{DS} = V_{GS}, I_D = 4.5mA	Fig.11
		-	2.4	-	V	V_{DS} = V_{GS}, I_D = 4.5mA T_J = 175°C	
I_{DSS}	Zero gate voltage drain current	-	1	10	μA	V_{DS} = 750V, V_{GS} = 0V	
I_{GSS}	Gate source leakage current	-	-	100	nA	V_{GS} = 18V, V_{DS} = 0V	
$R_{DS(on)}$	Current drain-source on-state resistance	-	71	98	mΩ	V_{GS} = 15V, I_D = 14A	Fig.4,5,6
		-	94	-		V_{GS} = 15V, I_D = 14A, T_J = 175°C	
		-	60	78		V_{GS} = 18V, I_D = 14A	
		-	89	-		V_{GS} = 18V, I_D = 14A, T_J = 175°C	
g_{fs}	Transconductance	-	10	-	S	V_{DS} = 20V, I_D = 14A	Fig.7
		-	9	-		V_{DS} = 20V, I_D = 14A, T_J = 175°C	
$R_{g,int}$	Internal gate resistance	-	4.5	-	Ω	V_{AC} = 25mV, f = 1MHz, open drain	

(Tc = 25°C unless otherwise specified)

C_{iss}	Input capacitance	-	879	-	pF	V_{DS} = 500V, V_{GS} = 0V T_J = 25°C, V_{AC} = 25mV f = 100kHz	Fig.17, 18
C_{oss}	Output capacitance	-	90	-			
C_{rss}	Reverse capacitance	-	5.5	-			
E_{oss}	Coss stored energy	-	13	-	μJ		

Q_{gs}	Gate source charge	-	8.5	-	nC	V_{DS} = 500V, V_{GS} = -4/+

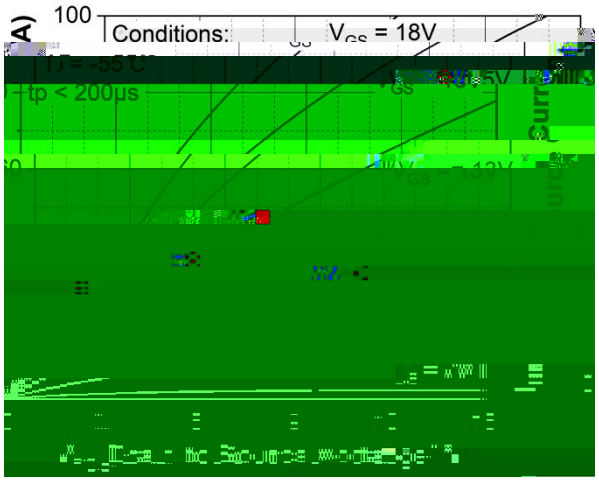


Figure 1. Output characteristics T_J = -55 ºC

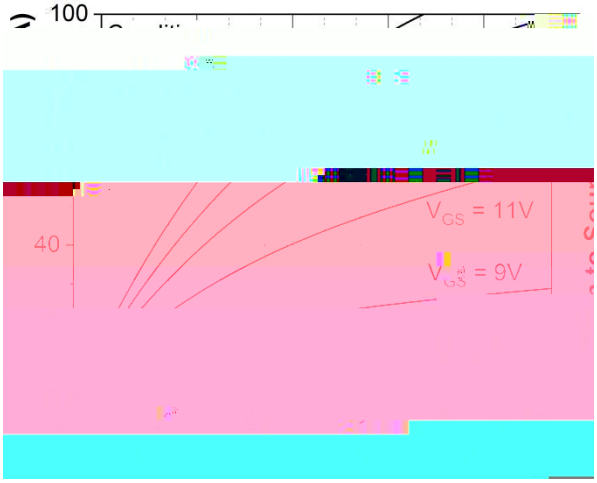


Figure 2. Output characteristics T_J = 25 ºC

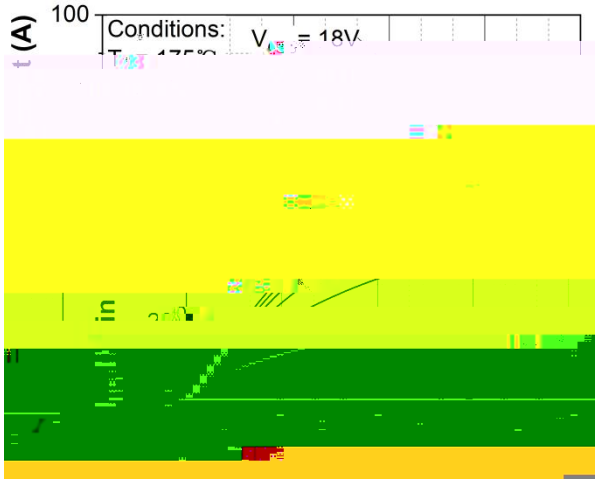


Figure 3. Output characteristics T_J = 175 ºC

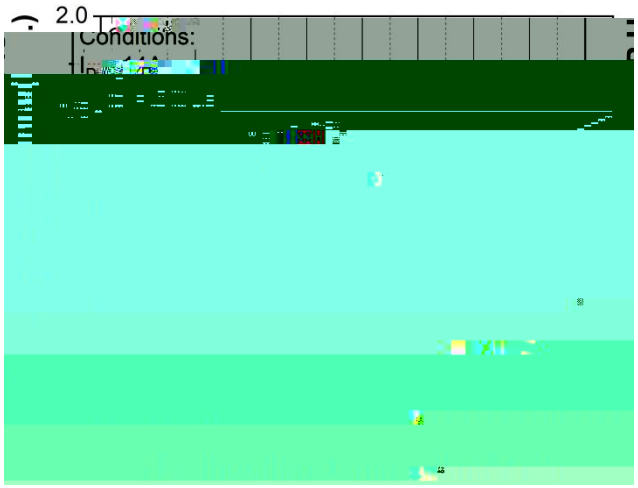


Figure 4. Normalized on-resistance vs. temperature

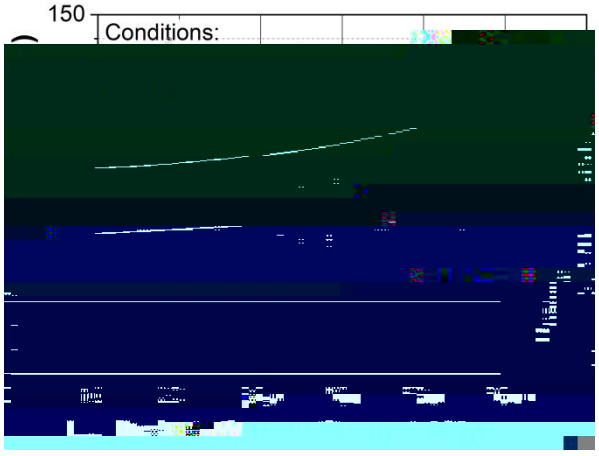


Figure 5. On-resistance vs. drain current for various temperatures

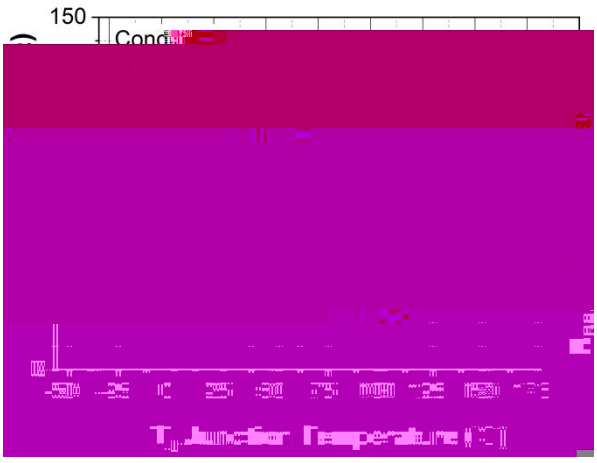


Figure 6. On-resistance vs. temperature for various gate voltages

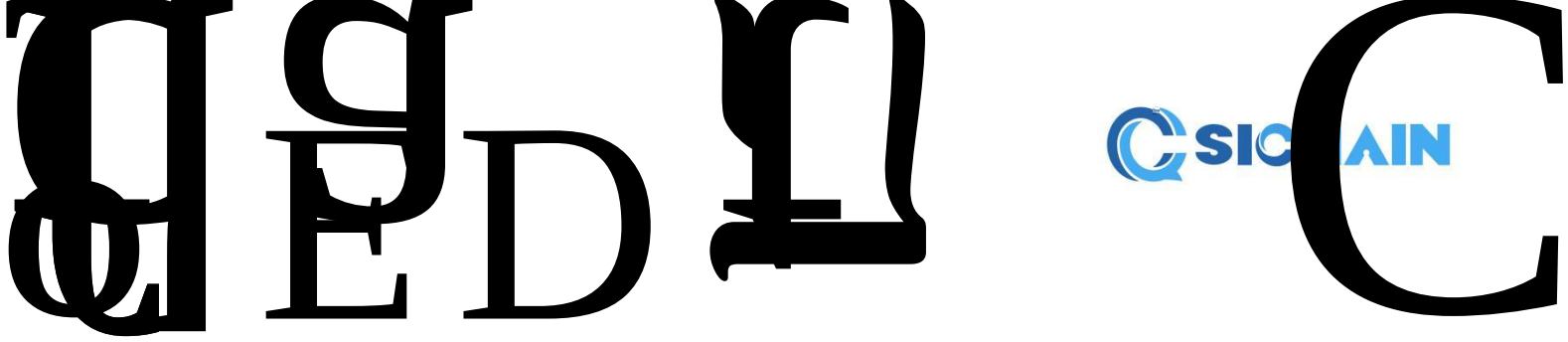


Figure 7. Transfer characteristic for various junction temperatures

Figure 8. Body diode characteristic at -55 ºC

Figure 9. Body diode characteristic

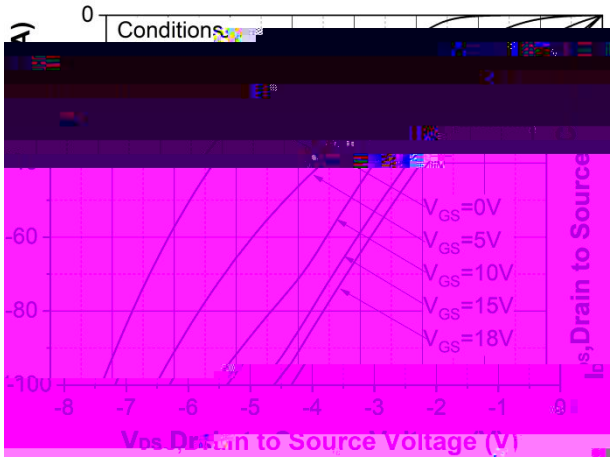


Figure 13. 3rd quadrant characteristic at T_J = -55 ºC

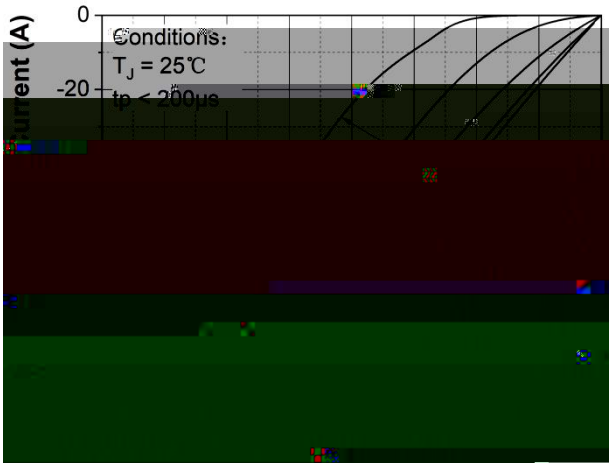


Figure 14. 3rd quadrant characteristic at T_J = 25 ºC

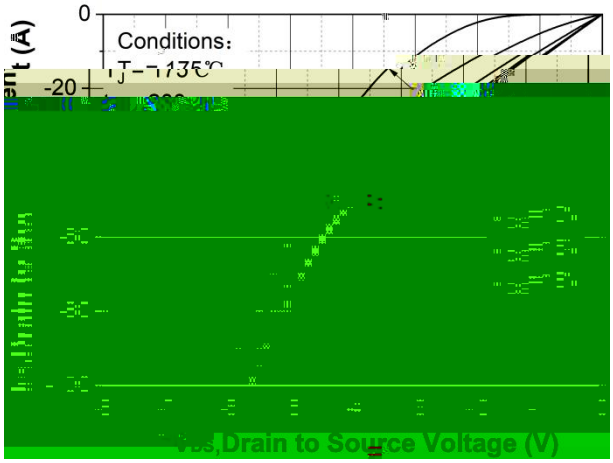


Figure 15. 3rd quadrant characteristic at T_J = 175 ºC

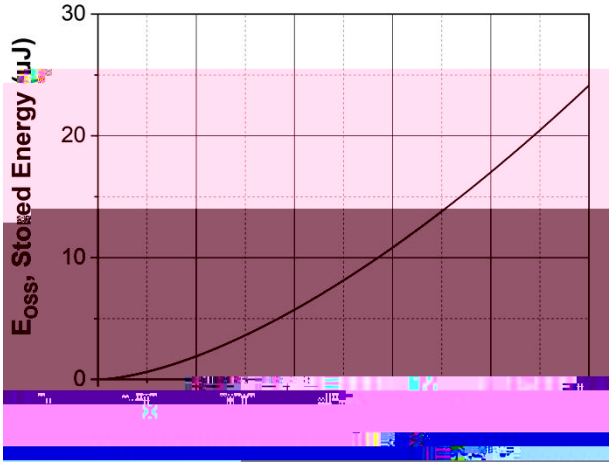


Figure 16. Output capacitor stored energy

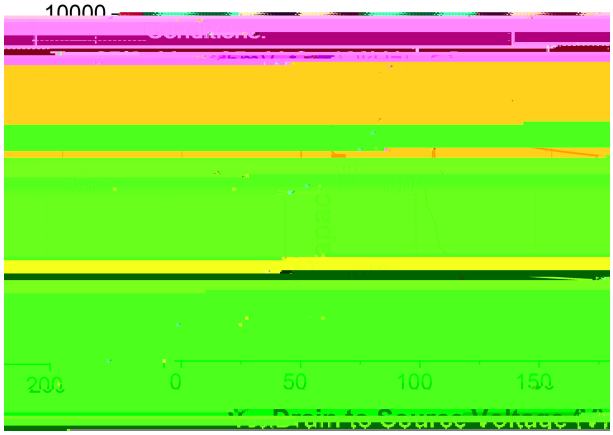


Figure 17. Capacitances vs. drain-source voltage (0 - 200V)

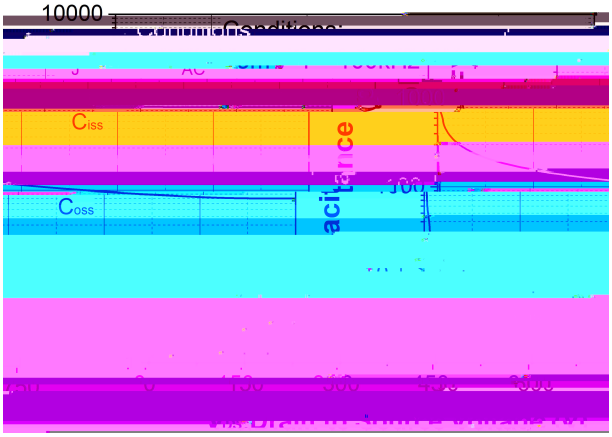


Figure 18. Capacitances vs. drain-source voltage (0 - 750V)

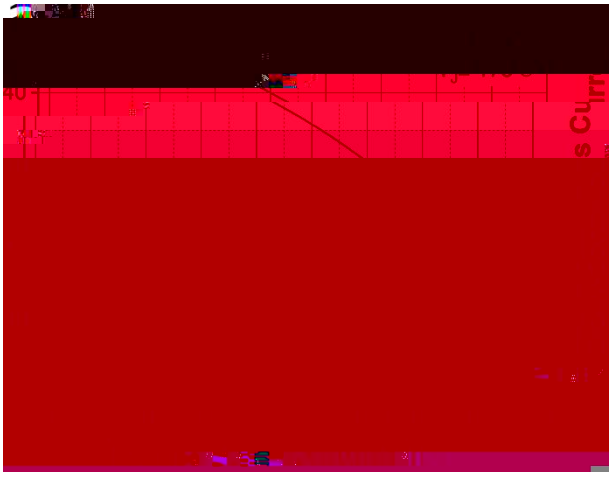


Figure 19. Continuous drain current derating vs. case temperature

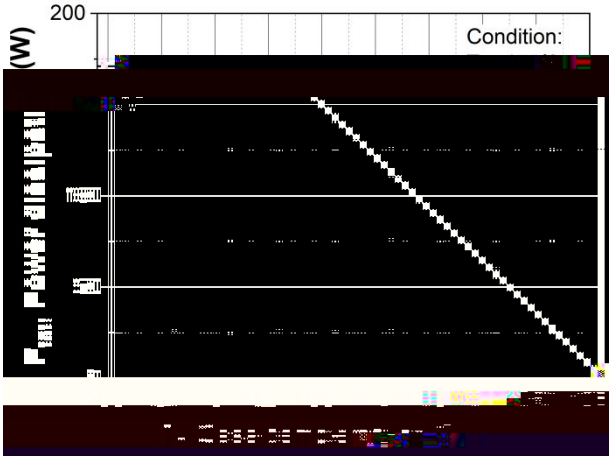


Figure 20. Maximum power dissipation derating vs. case temperature

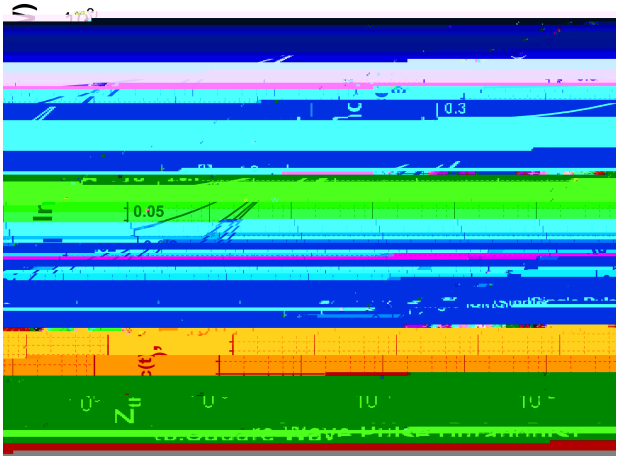


Figure 21. Transient thermal impedance (junction - case)

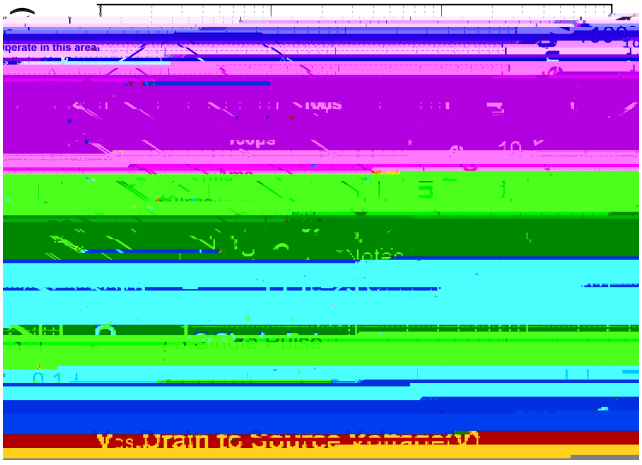


Figure 22. Safe operating area



Figure 23. Clamped Inductive switching energy vs. drain current (V_{DD} = 400V)

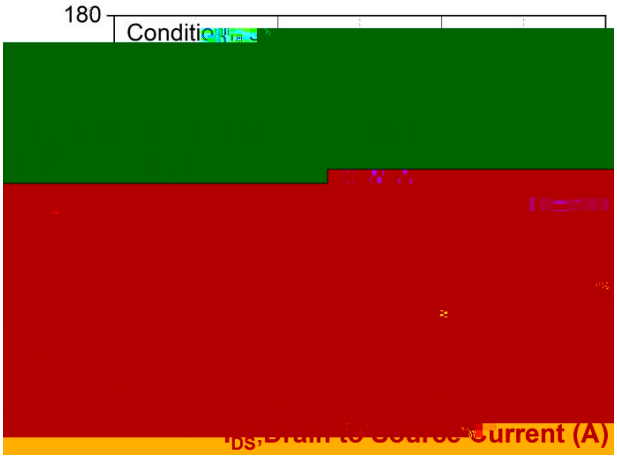
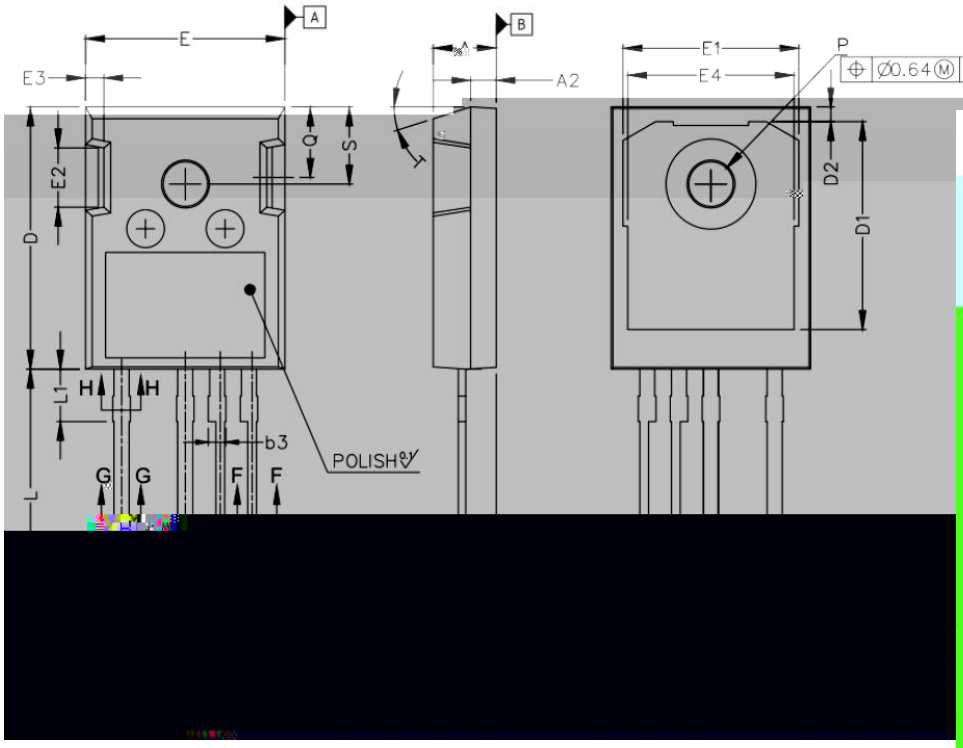
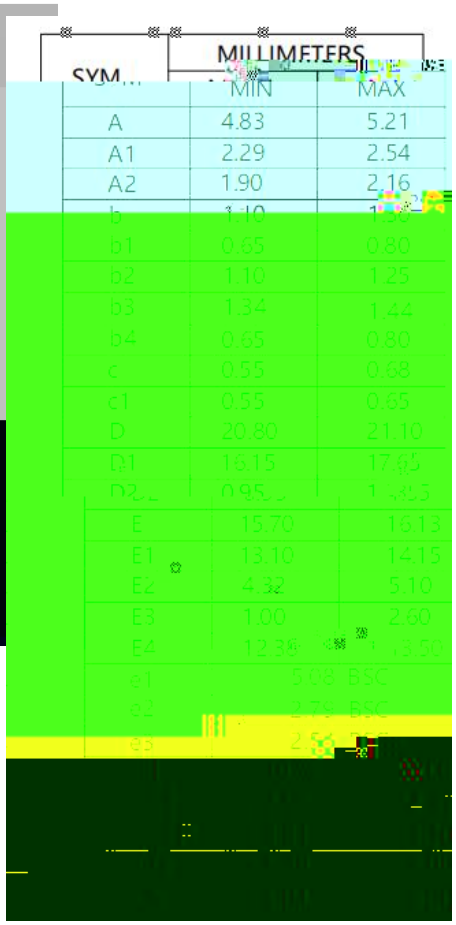
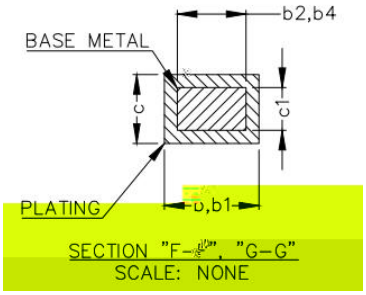


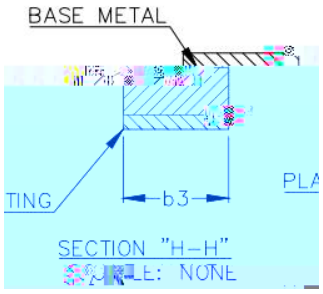
Figure 24. Clamped inductive switching energy vs. drain current (V_{DD} = 500V)

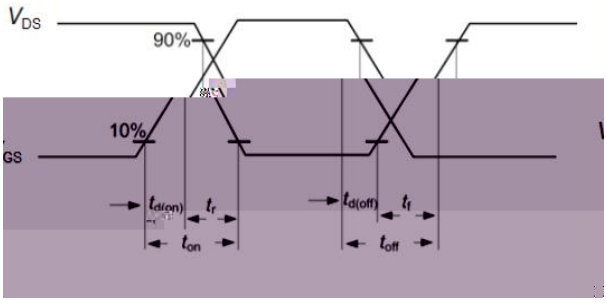
(TO-247-4L-C)


A
B
E
E3
E1
E4
A2
P
Ø0.64 M B M
E2
Q
S
D
D2
D1
H
H
L1
b3
POLISH
G
G
F
F
L


MILLIMETERS
SYM
MIN
MAX
A 4.83 5.21
A1 2.29 2.54
A2 1.90 2.16
b1 0.65 0.80
b2 1.10 1.25
b3 1.34 1.44
b4 0.65 0.80
c 0.55 0.68
c1 0.55 0.65
D 20.80 21.10
D1 16.15 17.65
E 15.70 16.13
E1 13.10 14.15
E2 4.32 5.10
E3 1.00 2.60
E4 12.36 13.50
e1 5.08 BSC
e2 2.54 BSC
e3 2.58


b2,b4
BASE METAL
c
c1
PLATING
b,b1
SECTION "F-F", "G-G"
SCALE: NONE


BASE METAL
TING
b3
PLA
SECTION "H-H"
SCALE: NONE



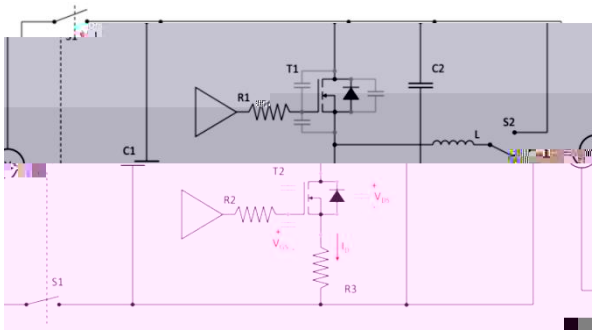


Figure A. Definition of

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6. Due to technical requirements products may contain dangerous substances. For information on the types in question please contact Sichain office.

7. Except as otherwise explicitly approved by Sichain in a written document signed by authorized representatives of Sichain, Sichain' products may not be used in any applications where a failure of the product or any consequences of the use thereof can reasonably be expected to result in personal injury.

8. For use of our products in applications requiring a hig on