N Channel Enhancement

- High speed switching
- Very low switching losses
- IGBT-compatible driving voltage (15V for turn-on)
- Fully controllable dv/dt
- High blocking voltage with low on-resistance
- Fast intrinsic diode with low reverse recovery (Qrr)
- Temperature independent turn-off switching losses
- Halogen free, RoHS compliant

TO-247-4L

- Cooling effort reduction
- Effic



(Tc = 25°C unless otherwise specified)

$V_{(BR)DSS}$	Drain-source breakdown voltage	1200	-	-	V	V_{GS} = 0V, I_D = 100μA	
$V_{GS(th)}$	Gate threshold voltage	2.3	2.8	3.6	V	V_{DS} = V_{GS}, I_D = 11.5mA	Fig.11
		-	2.0	-	V	V_{DS} = V_{GS}, I_D = 11.5mA T_J = 175°C	
I_{DSS}	Zero gate voltage drain current	-	1	10	μA	V_{DS} = 1200V, V_{GS} = 0V	
I_{GSS}	Gate source leakage current	-	-	100	nA	V_{GS} = 15V, V_{DS} = 0V	
$R_{DS(on)}$	Current drain-source on-state resistance	-	32	43	mΩ	V_{GS} = 15V, I_D = 40A	Fig.4,5,6
		-	49	-		V_{GS} = 15V, I_D = 40A, T_J = 175°C	
		-	27	35		V_{GS} = 18V, I_D = 40A	
		-	47	-		V_{GS} = 18V, I_D = 40A, T_J = 175°C	
g_{fs}	Transconductance	-	24	-	S	V_{DS} = 20V, I_D = 40A	Fig.7
		-	22	-		V_{DS} = 20V, I_D = 40A, T_J = 175°C	
$R_{g,int}$							



Figure 7. Transfer characteristic for various junction temperatures

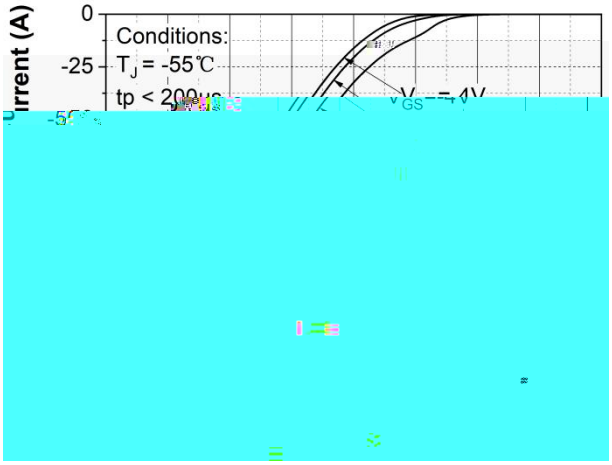


Figure 8. Body diode characteristic at T_J = -55 ºC

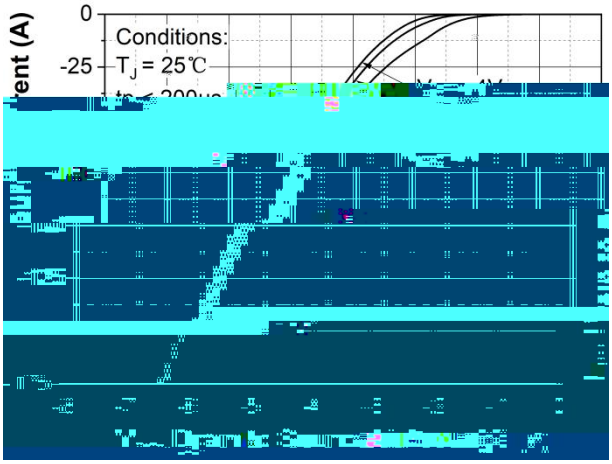


Figure 9. Body diode characteristic at T_J = 25 ºC

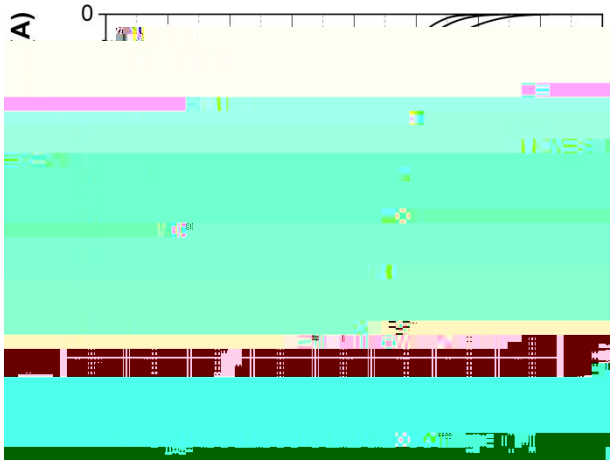


Figure 10. Body diode characteristic at T_J = 175ºC

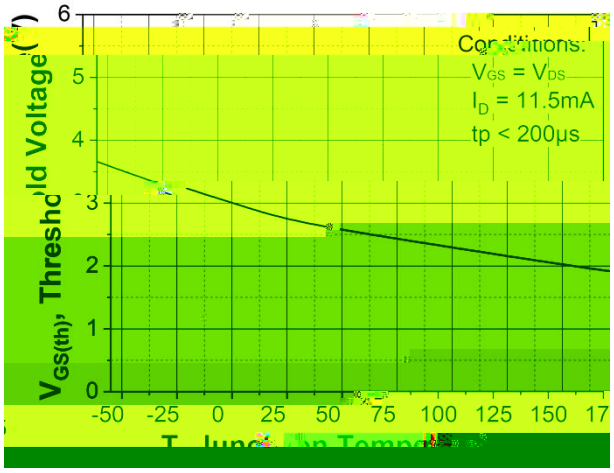


Figure 11. Threshold voltage vs. temperature

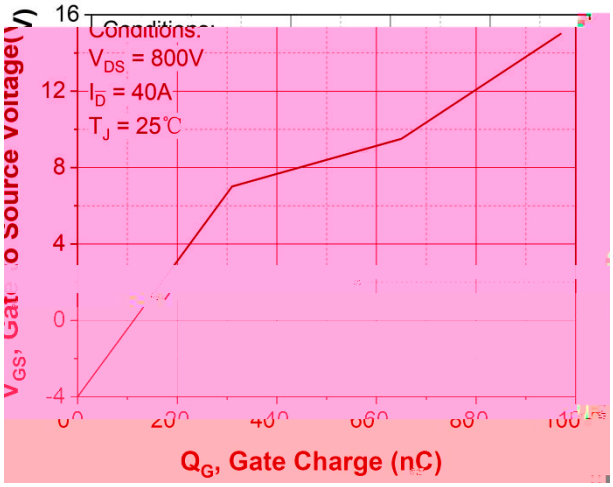


Figure 12. Gate charge characteristic

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 P

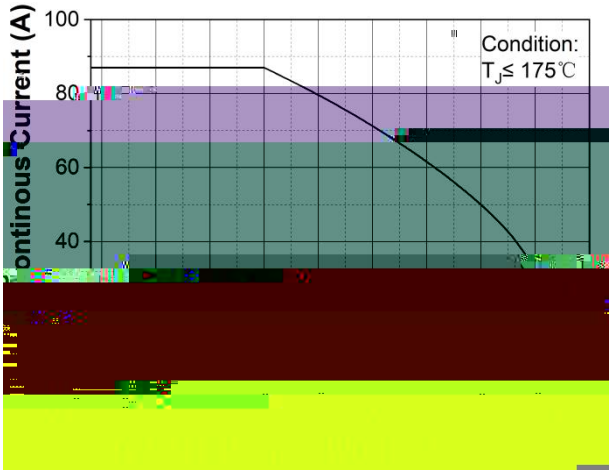


Figure 19. Continuous drain current derating vs. case temperature

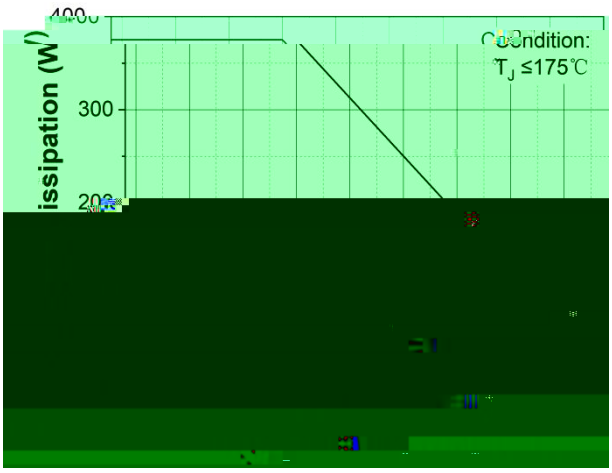


Figure 20. Maximum power dissipation derating vs. case temperature

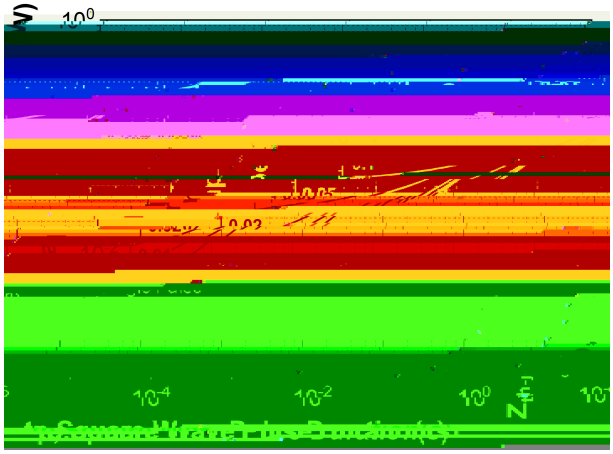


Figure 21. Transient thermal impedance (junction - case)

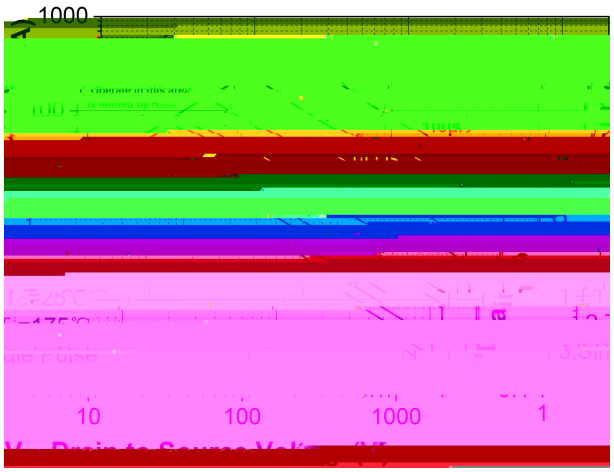


Figure 22. Safe operating area

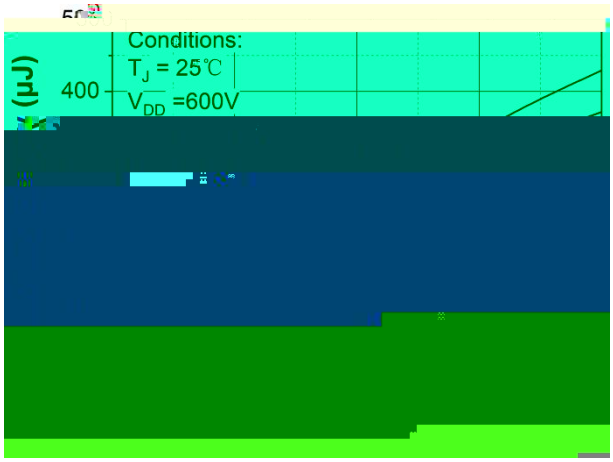


Figure 23. Clamped Inductive switching energy vs. drain current (V_{DD} = 600V)

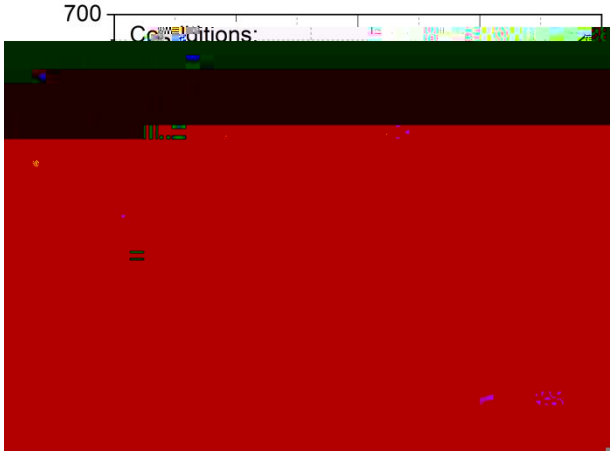


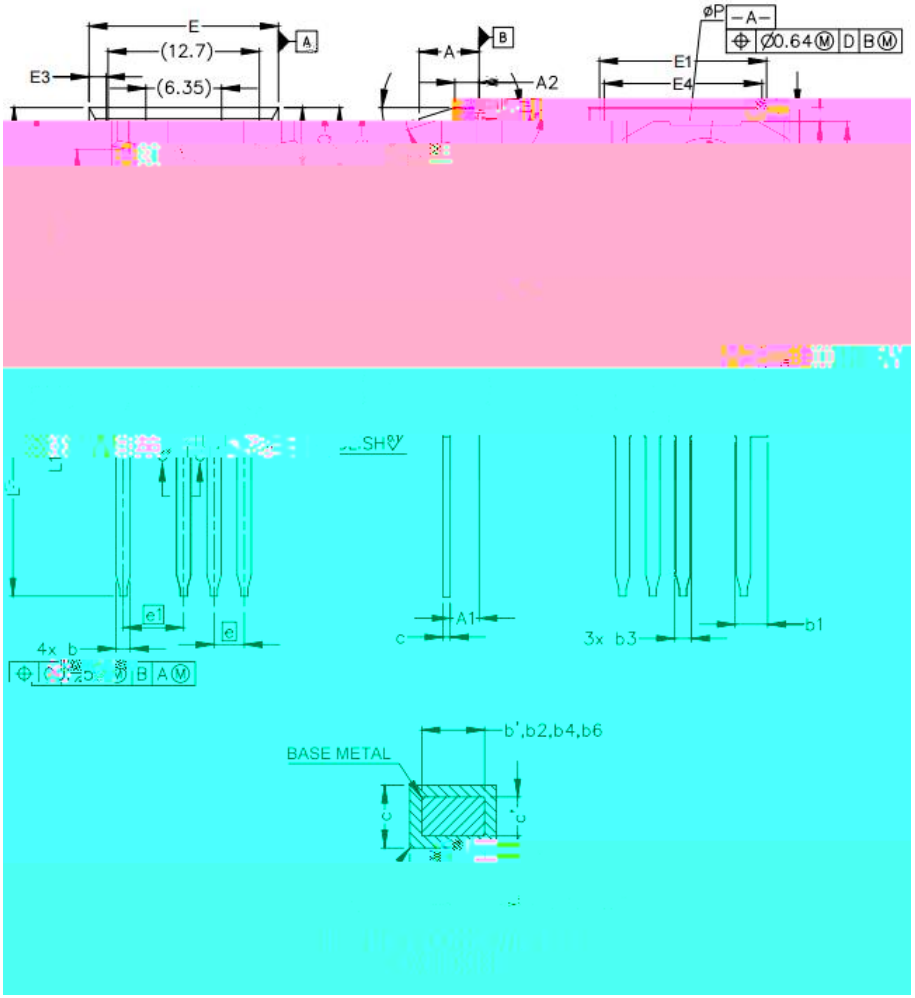
Figure 24. Clamped inductive switching energy vs. drain current (V_{DD} = 800V)

Figure 25. Clamped inductive switching energy vs. R_G(ext)

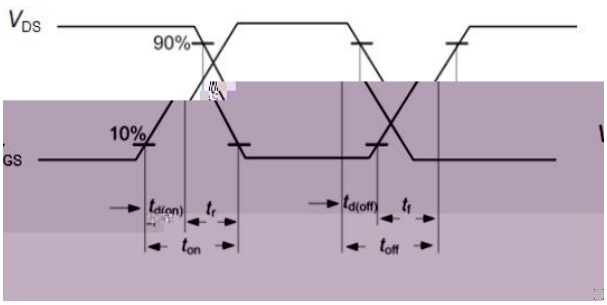
Figure 26. Clamped inductive switching energy vs. temperature

Figure 27. Switching times vs.

(TO-247-4L-A)



SYMBOL	MILLIMETERS	
	MIN	MAX
A	4.83	5.21
A1	2.29	2.54
A2	1.91	2.16
b'	1.07	1.28
b	1.07	1.33
b1	2.39	2.94
b2	2.39	2.84
b3	1.07	1.60
b4	1.07	1.50
b5	2.39	
b6	2.39	2.64
c'	0.55	0.65
c	0.55	0.68
D	23.30	23.60
D1	16.25	17.65
D2	0.95	1.25
E	15.75	16.13
E1	13.10	14.15
E2	3.68	5.10
		1.90
E4	12.38	13.43
e	2.54 BSC	
e1	5.08 BSC	



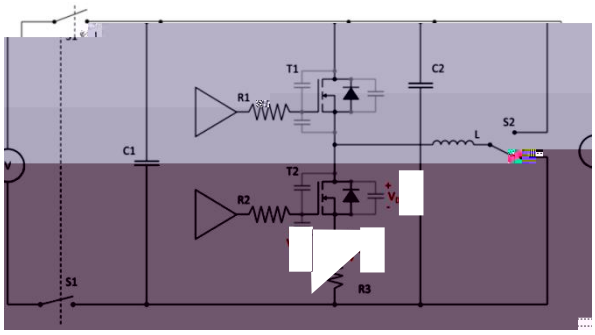


Figure B. Dynamic test circuit

		—	—
		—	—
		—	—
		—	—
		—	—
		—	—
		—	—

1.
The levels of RoHS restricted materials in this product are below the maximum concentration values (also referred to as the threshold limits) permitted for such substances, or are used in an exempted application, in accordance with EU Directive 2011/65/ EC (RoHS2), as implemented January 2, 2013.

2.
REACh substances of high concern (SVHCs) information is available for this product. Since the European Chemical Agency (ECHA) has published notice of their intent to frequently revise the SVHC listing for the foreseeable future, please contact a Sichain representative to insure you get the most up-to-date REACh SVHC Declaration. REACh banned substance information (REACh Article 67) is also available upon request.

3. With respect to information regardin^ xo

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 high degree of reliability (as exemplified below), please contact and consult with a Sichain representatives, for example but not limited to: transportation equipment,primary communication equipment,traffic lights,fire/crime prevention, safety equipment, medical systems, and power transmission systems.