μ6U

SICHAIN

Channel Enhancement

TO-247-4L



(Tc = 25°C unless otherwise specified)

$V_{DS,max}$	Drain source voltage	1200	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	85	A	V_{GS} = 18V, T_C = 25˚C	Fig.19
		60		V_{GS} = 18V, T_C = 100˚C	
$I_{D(pulse)}$	Pulsed drain current	220	A	Pulse width t_P =100μs limited by $T_{J,max}$	Fig.22
P_D	Power dissipation	341	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 screw	

Note 1 when using MOSFET Body Diode $V_{GS,max}$ = -4 / +22V

$R_{th(j-c)}$	Thermal resistance from junction to case	-	0.35	0.44	°C/W	-	Fig.21

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$V_{(BR)DSS}$	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 = 11mA	Fig.11
		-	2.1	-	V	V_{DS} = V_{GS}, I_D = 11mA 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} = 18V, V_{DS} = 0V	
$R_{DS(on)}$	Current drain-source on-state resistance	-	30	45	mΩ	V_{GS} = 15V, I_D = 40A	Fig.4,5, 6
		-	49	-		V_{GS} = 15V, I_D = 40A, T_J = 175°C	
		-	26	36		V_{GS} = 18V, I_D = 40A	
		-	47	-		V_{GS} = 18V, I_D = 40A, T_J = 175°C	
g_{fs}	Transconductance	-	30	-	S	V_{DS} = 20V, I_D = 40A	Fig.7
		-	27	-		V_{DS} = 20V, I_D = 40A, T_J = 175°C	
$R_{g,int}$	Intenal gate resistance	-	3	-	Ω	V_{AC} =	

Q_{gs}	Gate source charge	-	24	-	nC	V_{DS}

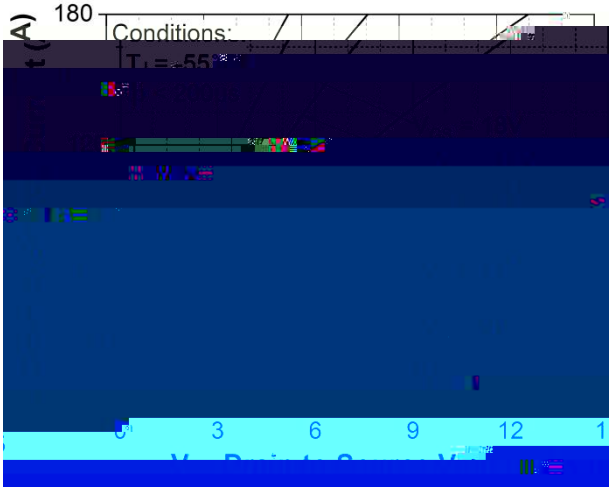


Figure 1. Output characteristics T_J = -55 ºC

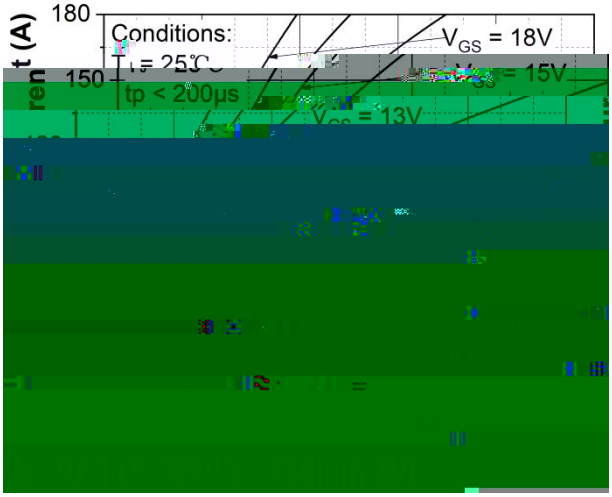


Figure 2. Output characteristics T_J = 25 ºC

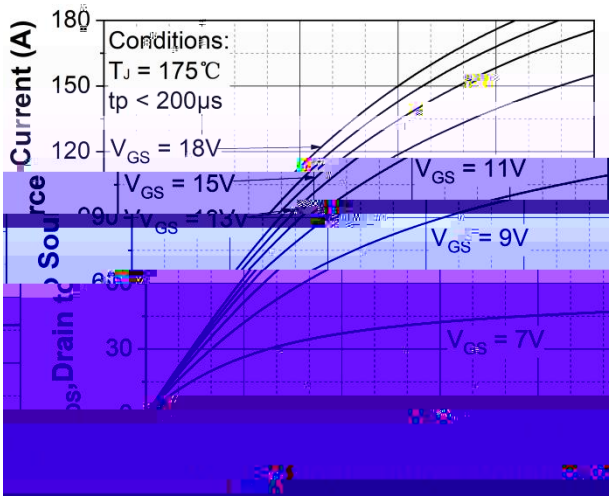


Figure 3. Output characteristics T_J = 175 ºC

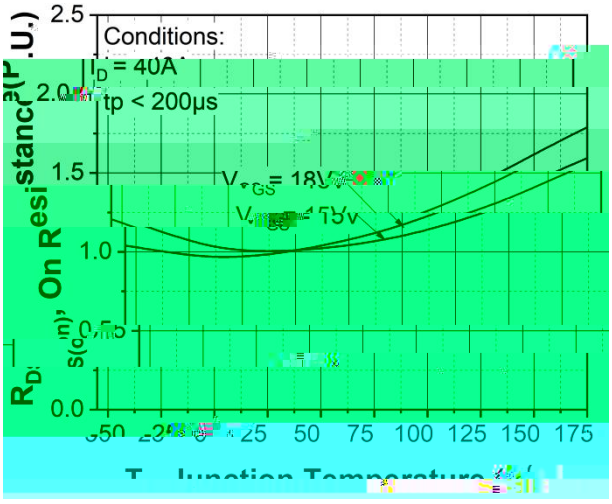


Figure 4. Normalized on-resistance vs. temperature



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

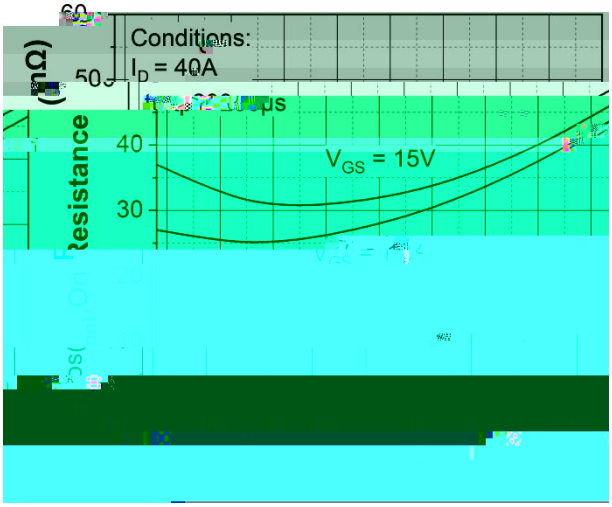


Figure 6. On-resistance vs. temperature for various gate voltages

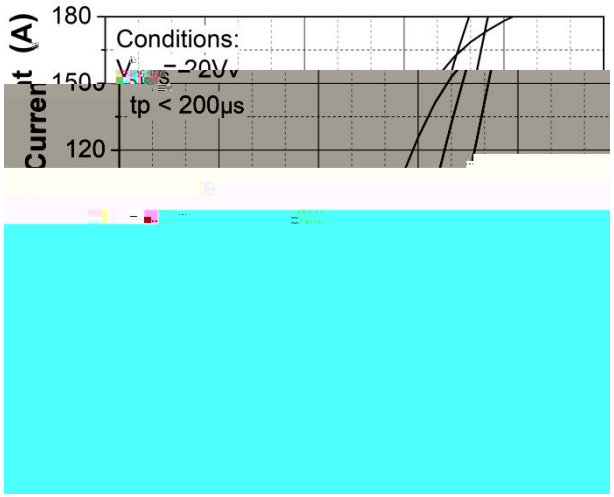


Figure 7. Transfer characteristic for various junction temperatures

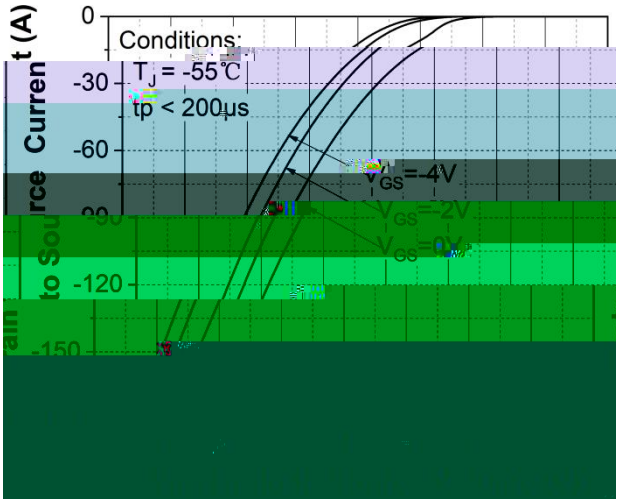


Figure 8. Body diode characteristic at T_J = -55 ºC

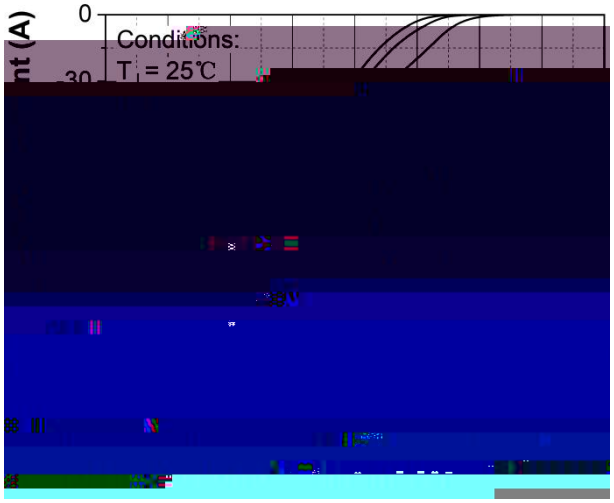


Figure 9. Body diode characteristic at T_J = 25 ºC

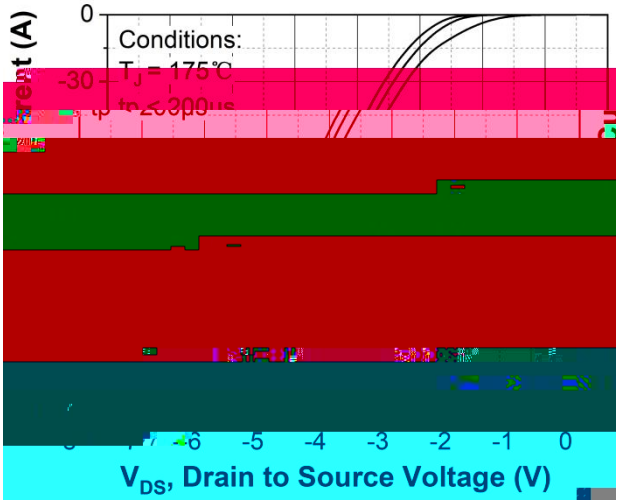


Figure 10. Body diode characteristic at T_J = 175ºC

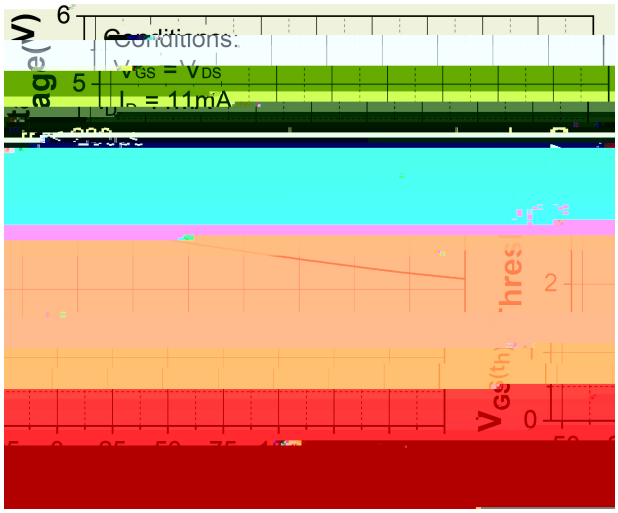


Figure 11. Threshold voltage vs. temperature

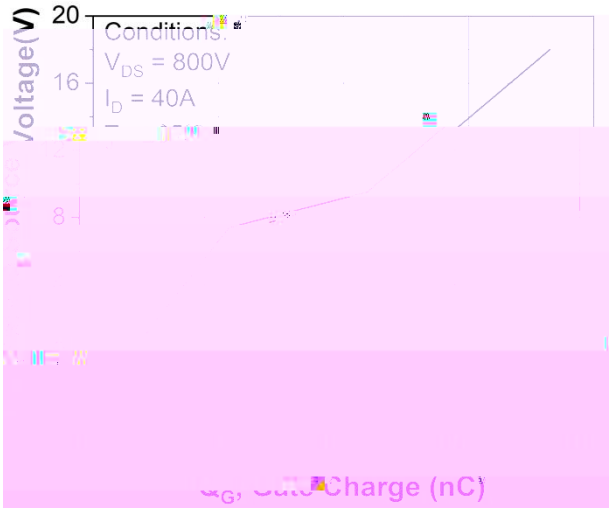


Figure 12. Gate charge characteristic

aJ

a

Da a

Datasheet

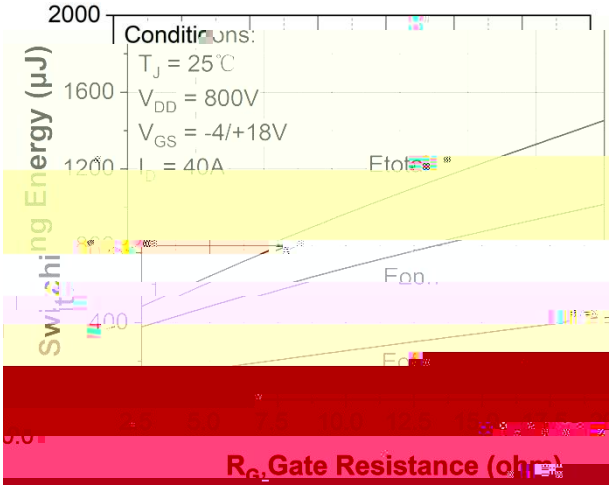


Figure 25. Clamped inductive switching energy vs. R_G (ext)

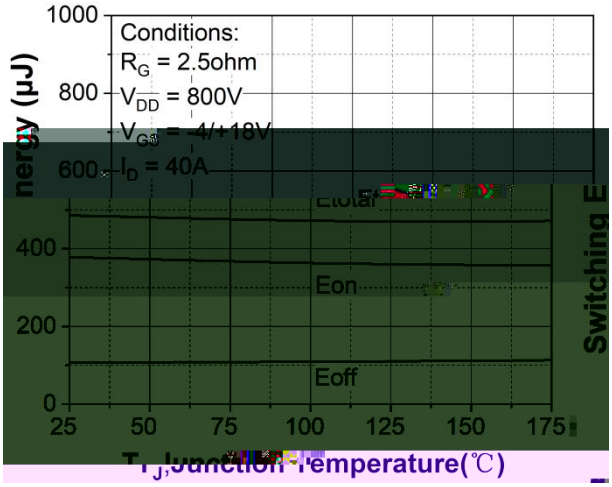


Figure 26. Clamped inductive switching energy vs. temperature

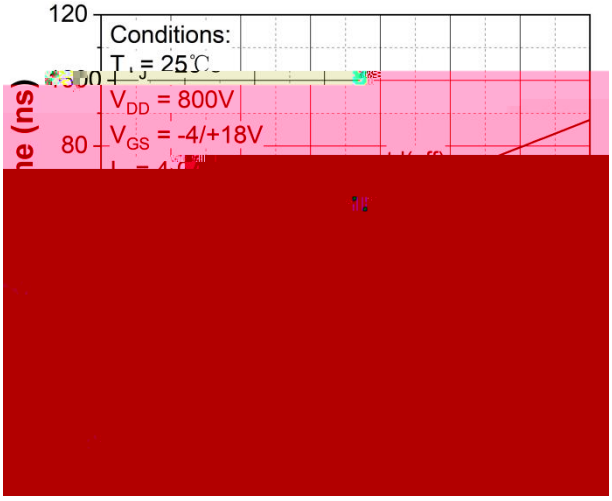
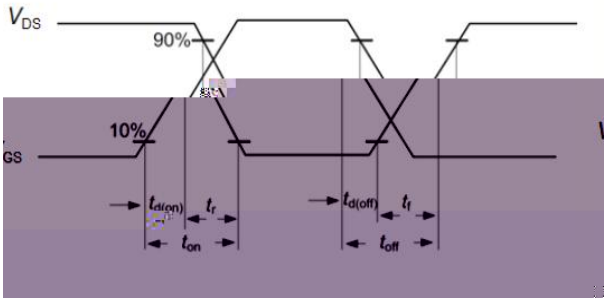


Figure 27. Switching times vs. R_G (ext)



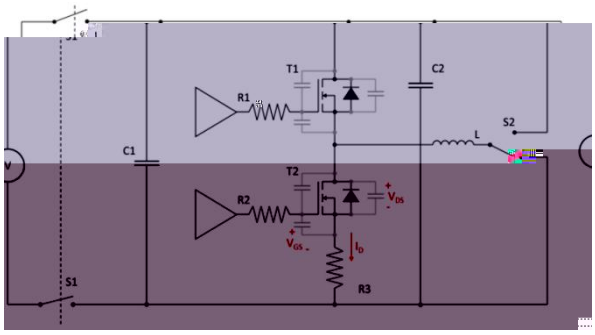


Figure A. Definition of switchjf q] C

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.