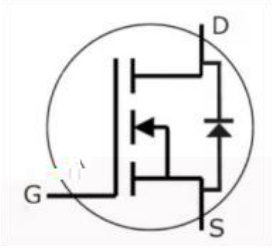
N Channel Enhancement



- High speed switching
- Very low switching losses
- High blocking voltage with low on-resistance
- Temperature independent turn-off switching losses
- Halogen free, RoHS compliant

S3M010120RK-A	4.8 * 6.3

- Cooling effort reduction
- Efficiency improvement
- Reduced cooling requirements
- Increased power density
- Increased system switching frequency

- EV motor drive
- PV string inverters
- Solar power optimizer
- Switch mode power supplies

		(T_C=25 , $R_{th\ (j\text{-}c),max}$ ≤ 0.26 °C/W)	(V_{GS} = 18V, I_D = 86A, T_J=25)	
S3M010120RK-A	1200V	179A	10mΩ	175

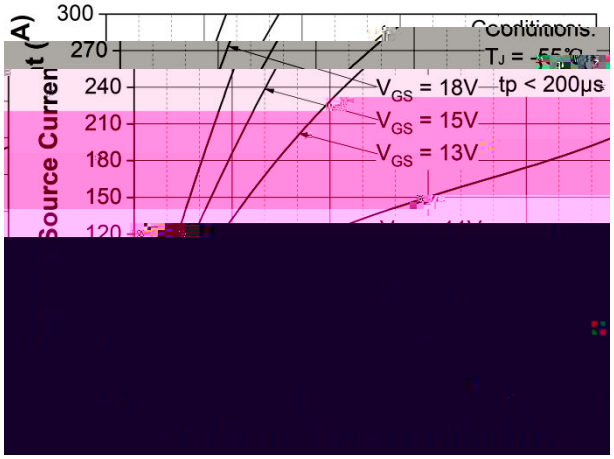


Figure 1. Output characteristics T_J = -55 ºC

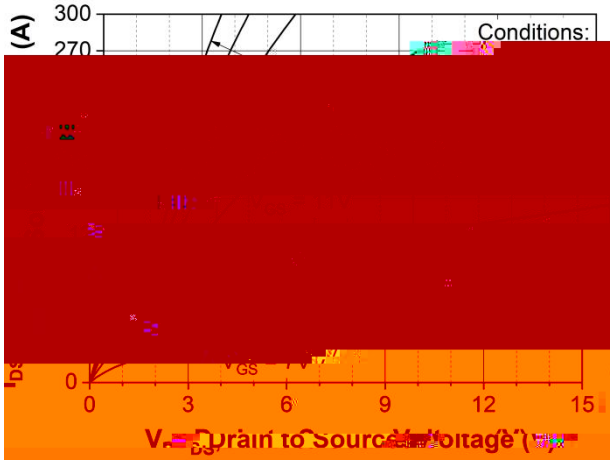


Figure 2. Output characteristics T_J = 25 ºC

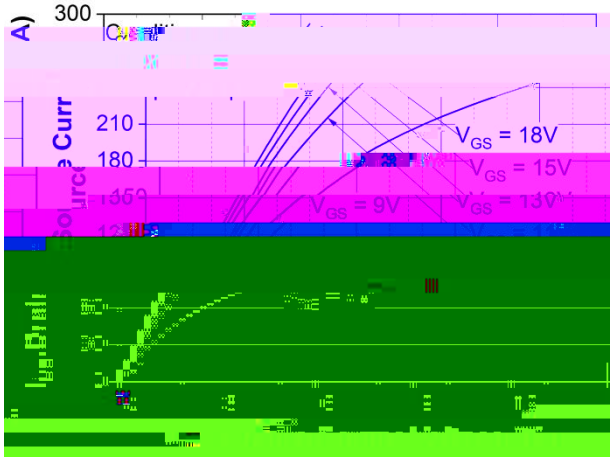


Figure 3. Output characteristics T_J = 175 ºC

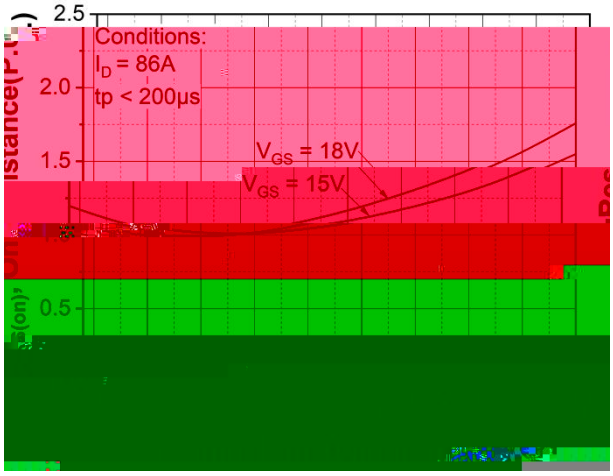


Figure 4. Normalized on-resistance vs. temperature

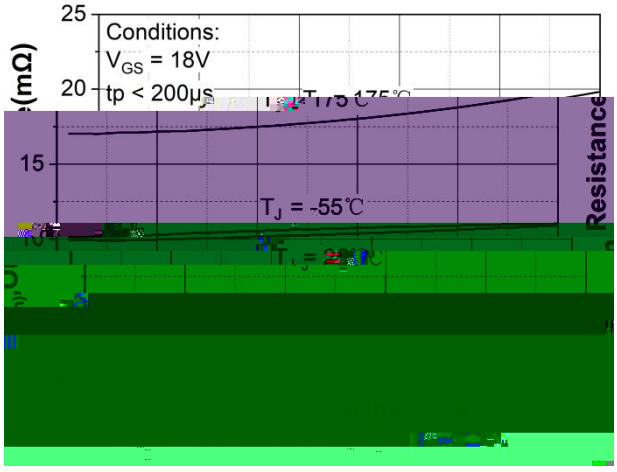


Figure 5. On-resistance vs. drain current for various temperatures

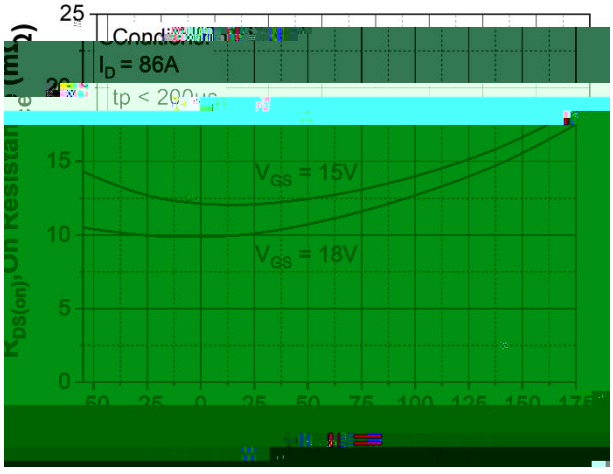


Figure 6. On-resistance vs. temperature for various gate voltages

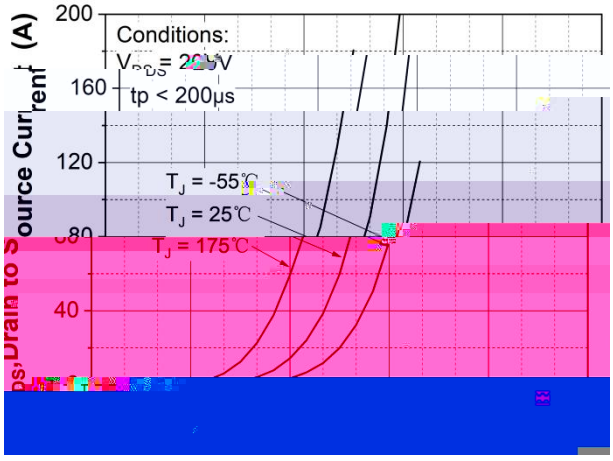


Figure 7. Transfer characteristic for various junction temperatures

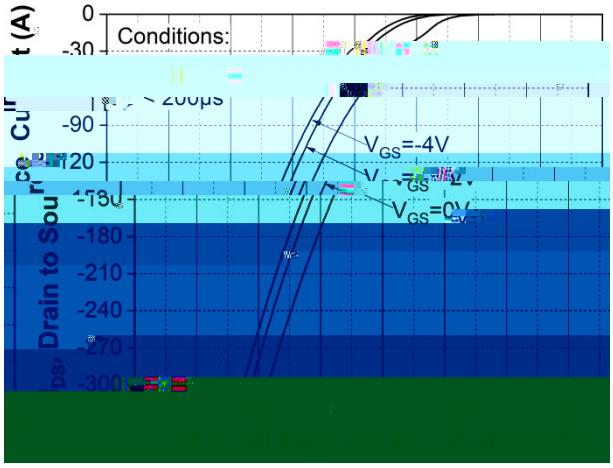


Figure 8. Body diode characteristic at T_J = -55 ºC

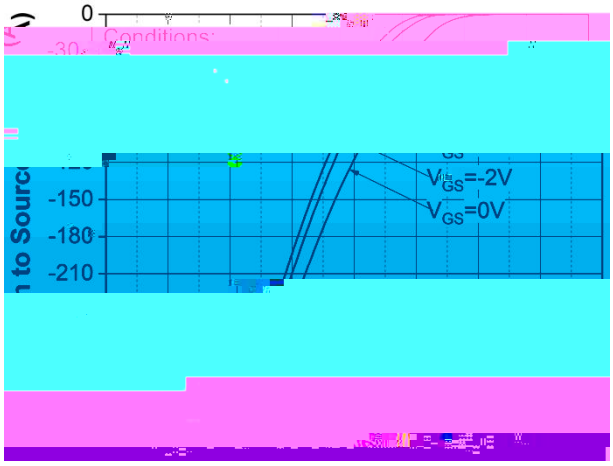


Figure 9. Body diode characteristic at T_J = 25 ºC

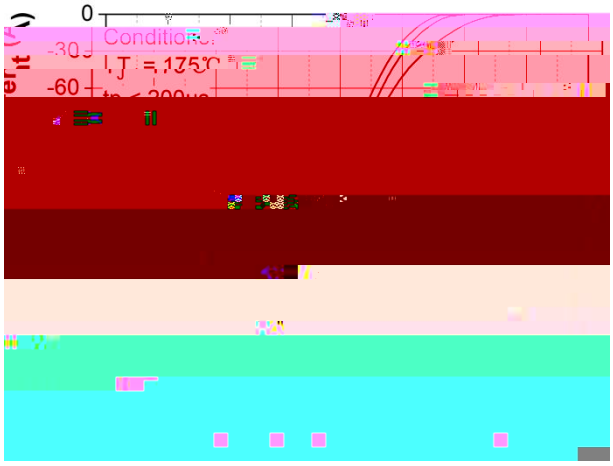


Figure 10. Body diode characteristic at T_J = 175ºC

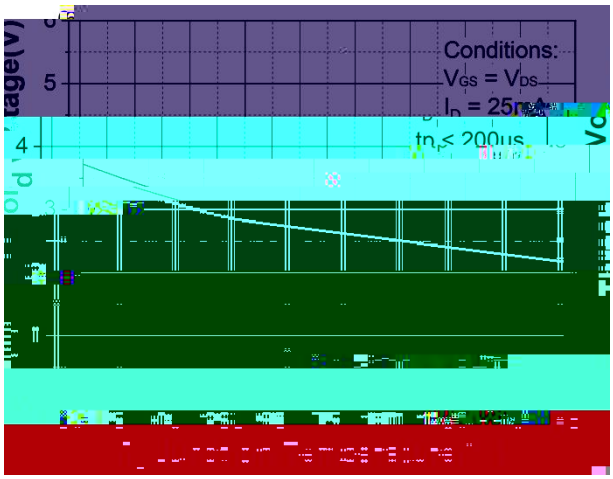


Figure 11. Threshold voltage vs. temperature

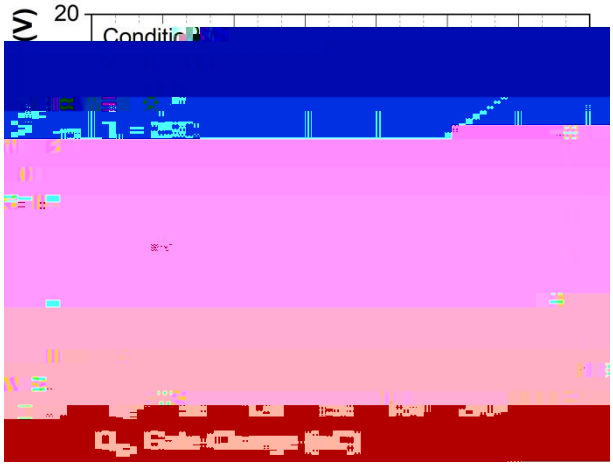


Figure 12. Gate charge characteristic

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

Die size W x L		4.80 * 6.30	mm	
Gate pad size W x L		0.78 * 0.67	mm	
Source pad size W x L		1.75 *4.30	mm	
Kelvin pad size W x L		1.10 * 0.70	mm	
Die thickness		150 ± 20	μm	
Top side	gate & kelvin source metallization	4	μm	AlCu

Top side

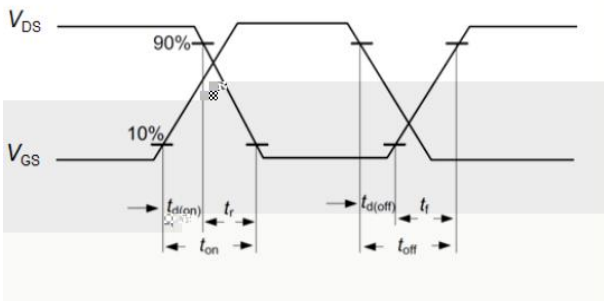


Figure A. Definition of switching times

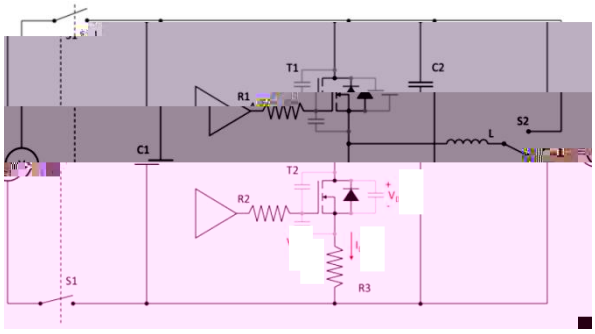


Figure B. Dynamic test circuit

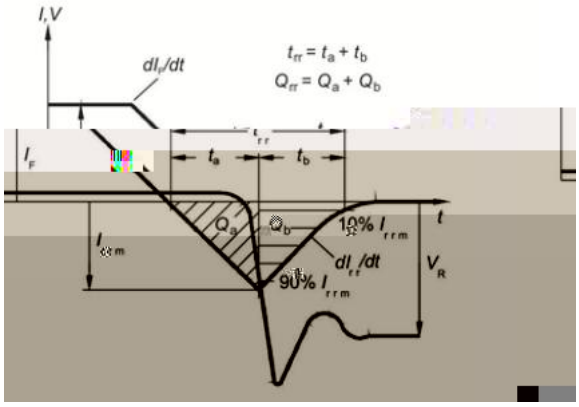


Figure C. Definition of body diode switching characteristics

			——

of

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.