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

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

SG1M160120B	1.850 * 2.645

- EV motor drive
- Solar inverters
- High voltage DC/DC converters
- Switch mode power supplies

(T_C = 25 , (

$R_{th\ (j\text{-}c),max}$ ≤ 1.23 °C/W)

(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 /+19	V	Absolute maximum values	No

(Tc = 25°C unless otherwise specified)

$V_{(BR)DSS}$	Drain-source breakdown voltage	1200	-	-	V	V_{GS} = 0V, I_D = 100μA	
		2.3	2.8	3.6	V	V_{DS} = V_{GS}, I_D = 2.33mA	
$V_{GS(th)}$	Gate threshold voltage	-	2.0	-	V	V_{DS} = V_{GS}, I_D = 2.33mA, T_J = 175°C	Fig.11
I_{DSS}	Zero gate voltage drain						

Figure 1. Output characteristics T_J = -55 ºC

Figure 2. Output characteristics T_J = 25 ºC

Figure 3. Output characteristics

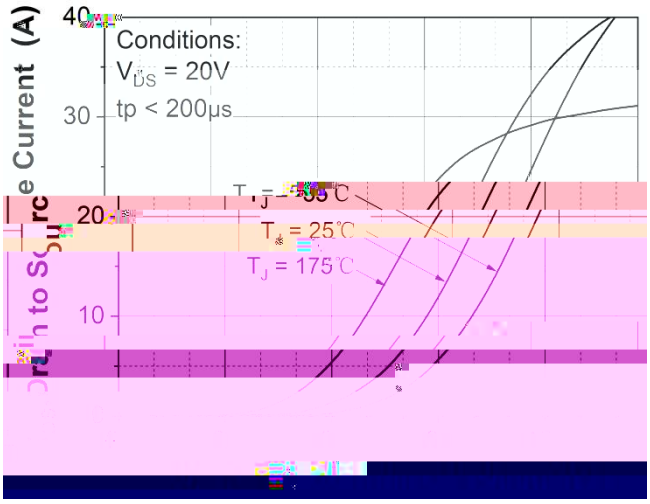


Figure 7. Transfer characteristic for various junction temperatures

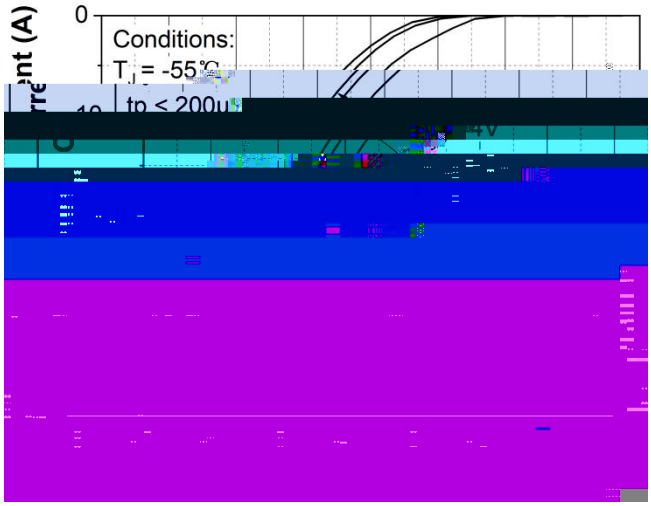


Figure 8. Body diode characteristic at T_J = -55 ℃

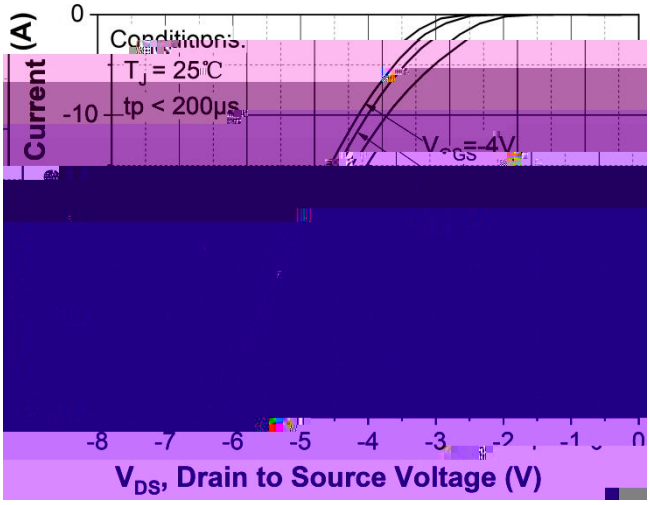


Figure 9. Body diode characteristic at T_J = 25 ℃

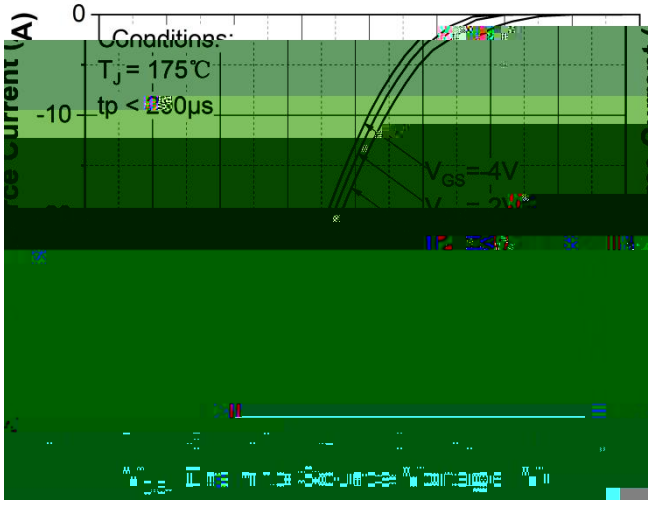


Figure 10. Body diode characteristic at T_J = 175℃

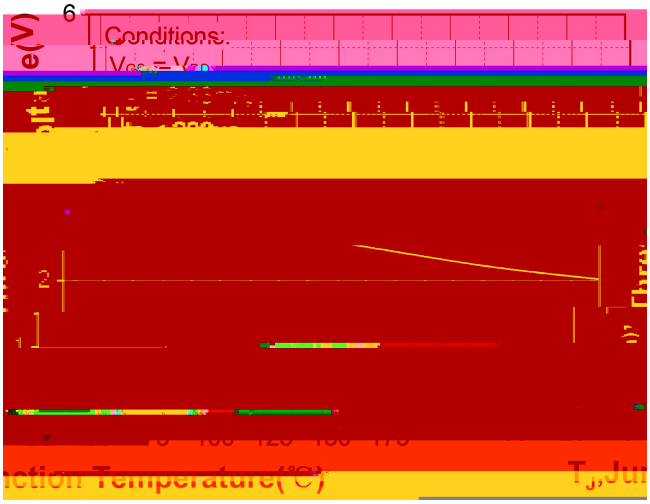


Figure 11. Threshold voltage vs. temperature

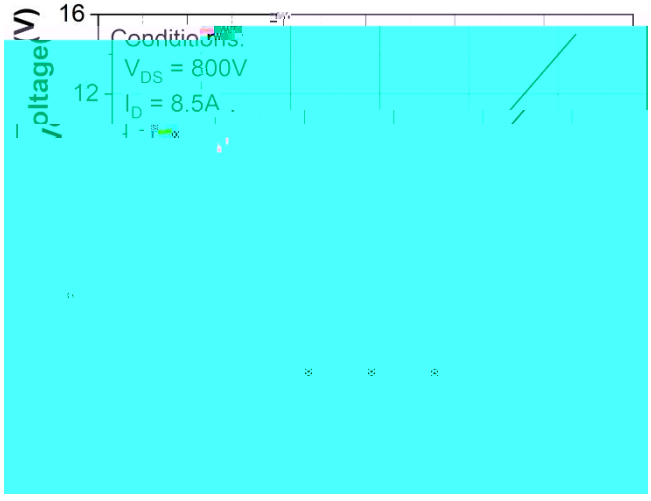
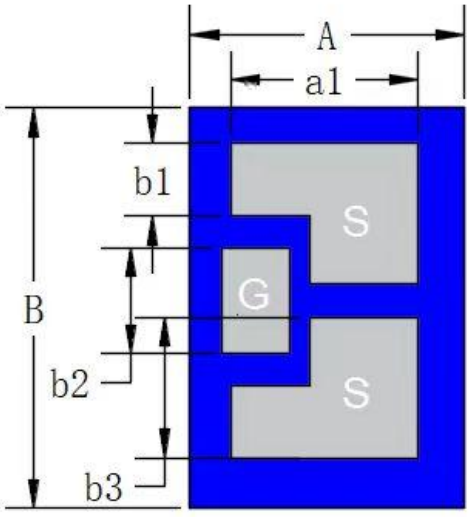


Figure 12. Gate charge characteristic

Die size W x L	1.850 * 2.645	mm	
Gate pad size W x L	0.449 * 0.749	mm	
Die thickness	180	μm	
Top side source gate metallization	4	μm	Ti/Al
Back side drain metallization	1	μm	Ti/Ni/Ag



Symbol	Dimension / mm
B	2.645
b1	0.478
b2	0.749
b3	0.900
A	1.850
a1	1.249

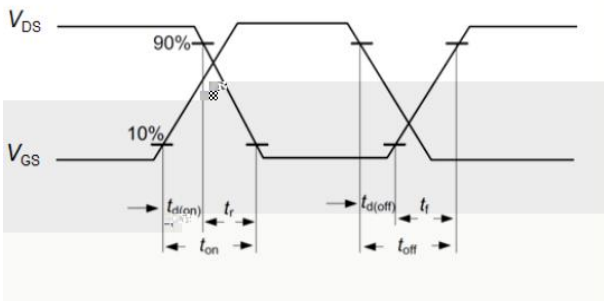


Figure A. Definition of switching times

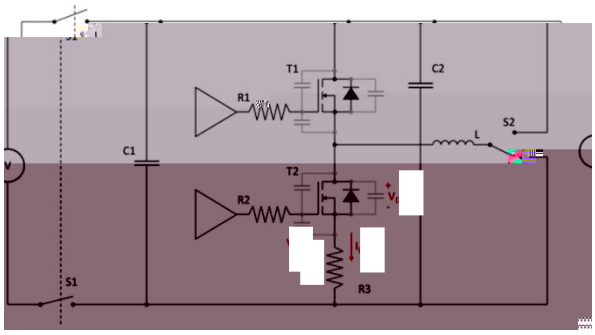


Figure B. Dynamic test circuit

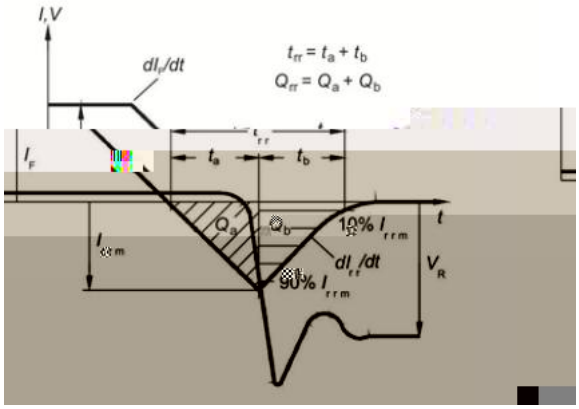


Figure C. Definition of body diode switching characteristics

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