

/ Descriptions

SOT-23 N MOS

N-CHANNEL MOSFET in a SOT-23 Plastic Package.

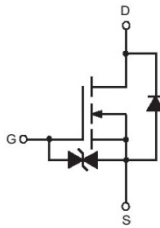
/ Features

Sensitive gate trigger current and Low Holding current.ESD protected up to 2KV, Qualified to AEC-Q101 Standards for High Reliability, HF Product.

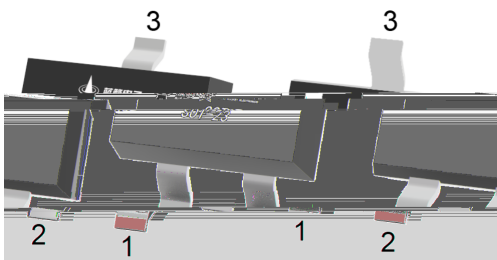
/ Applications

Intended for use in general purpose switching and phase control applications, Meet the stringent requirements of automotive applications.

/ Equivalent Circuit



/ Pinning



PIN1 G

PIN 2 S

PIN 3 D

/ Marking

Marking

QSA

/ Absolute Maximum Ratings(Ta=25)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	100	V
Drain Current – Continuous	I_D	170	mA
Drain Current– Pulsed	$I_D(T_C=25)$	680	mA
Continuous Drain–Source	I_S	170	mA
Gate-Source Voltage	V_{GS}	± 20	V
Power Dissipation	P_D	0.36	W
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	350	$^{\circ}C/W$
Operating and Storage Junction Temperature Range	T_J, T_{STG}	-55 to 150	

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain–Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V$ $I_D=250\mu A$	100			V
Zero Gate Voltage Drain Current	$I_{DSS(1)}$	$V_{DS}=100V$ $V_{GS}=0V$			1.0	μA
	$I_{DSS(2)}$	$V_{DS}=100V$ $V_{GS}=0V$ $T_J=85$			30	μA
Gate–Body Leakage.	I_{GSS}	$V_{GS}=\pm 20$ $V_{DS}=0V$			± 10	μA
On–State Drain Current	$I_{D(on)}$	$V_{DS}=5.0V$ $V_{GS}=10V$	0.68			A
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\mu A$	1.5	2.0	2.5	V
Static Drain–Source On–Resistance	$R_{DS(on)(1)}$	$V_{GS}=10V$ $I_D=0.17A$		3.3	6.0	Ω
	$R_{DS(on)(2)}$	$V_{GS}=4.5V$ $I_D=0.17A$		4.0	10	Ω
Drain–Source Diode Forward Voltage	V_{SD}	$V_{GS}=0V$ $I_S=0.34A$		0.8	1.3	V
Input Capacitance	C_{iss}	$V_{DS}=25V$ $V_{GS}=0V$ $f=1.0MHz$		73		pF
Output Capacitance	C_{oss}			7		pF
Reverse Transfer Capacitance	C_{rss}			3.4		pF
Turn–On Delay Time	$t_{d(on)}$	$I_D=0.28A$ $V_{GS}=10V$ $V_{DD}=30V$ $R_G=6.0\Omega$		1.8		ns
Turn–On Rise Time	t_r			11		ns
Turn–Off Delay Time	$t_{d(off)}$			19		ns
Turn–Off Fall Time	t_f			2.6		ns

/ Electrical Characteristic Curve

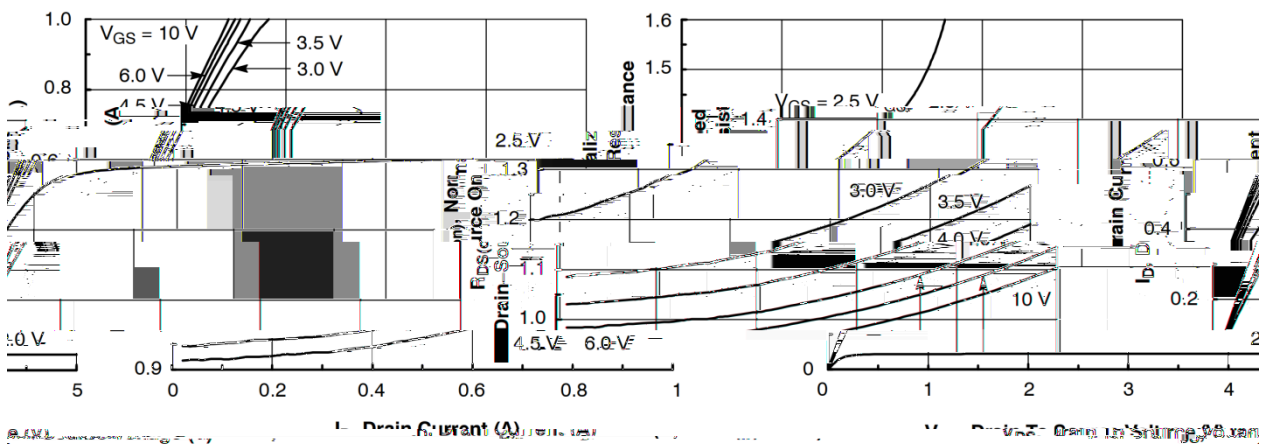


Figure 2. Drain Current vs. Drain-Source Voltage and Gate-Source Voltage

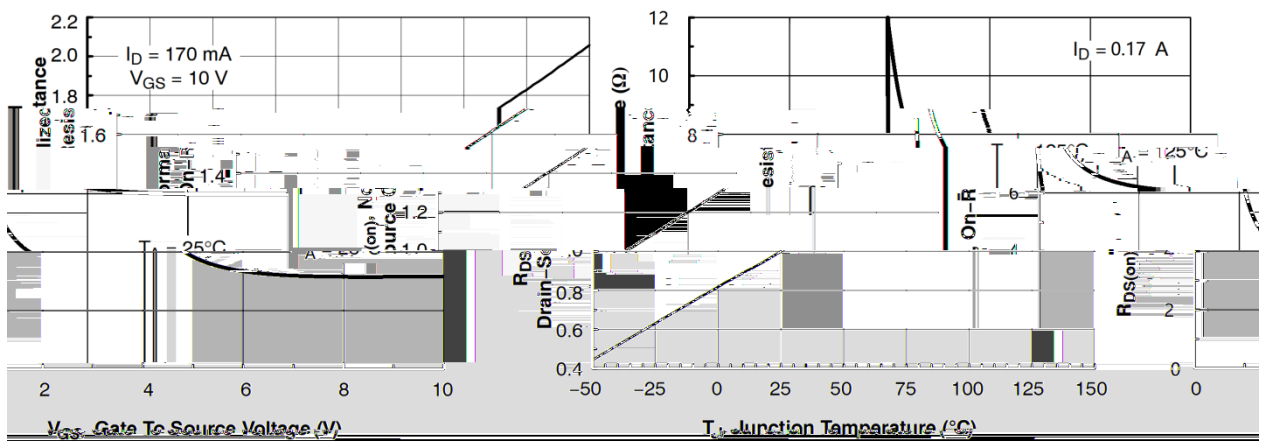


Figure 3. On-Resistance Variation with Temperature

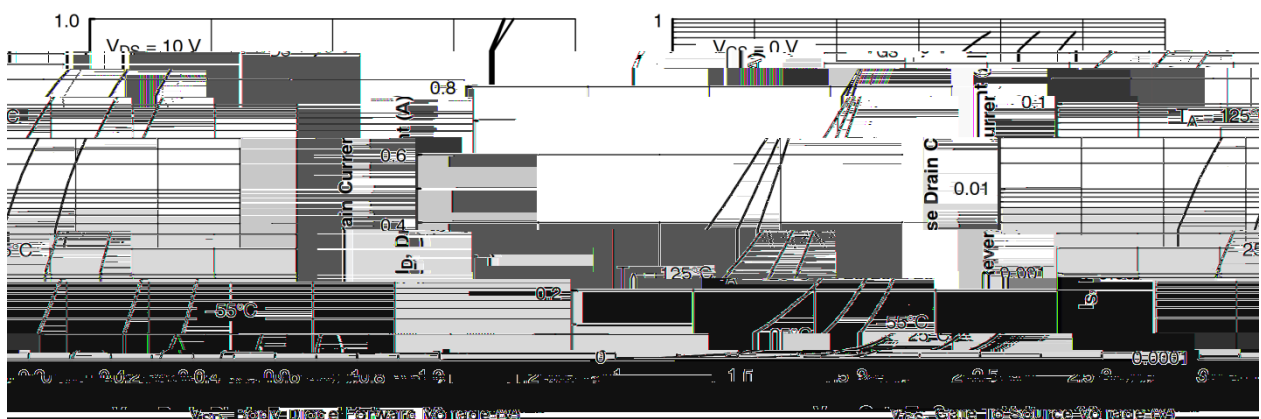


Figure 5. Transfer Characteristics

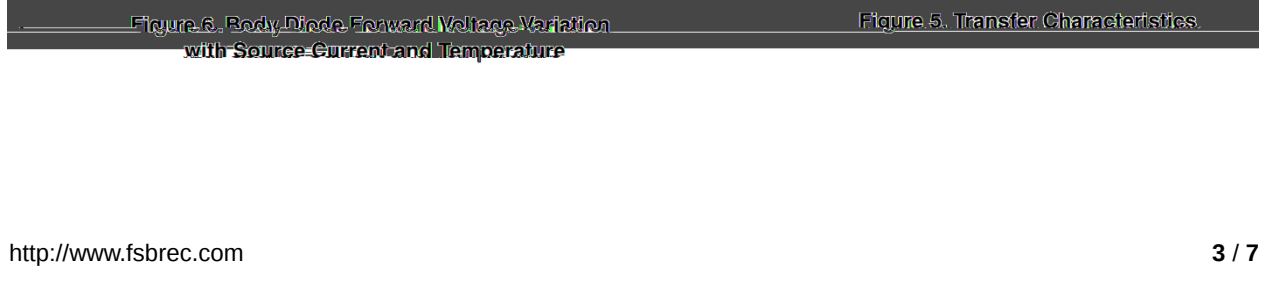


Figure 6. Body Diode Forward Voltage Variation with Source Current and Temperature

/ Electrical Characteristic Curve

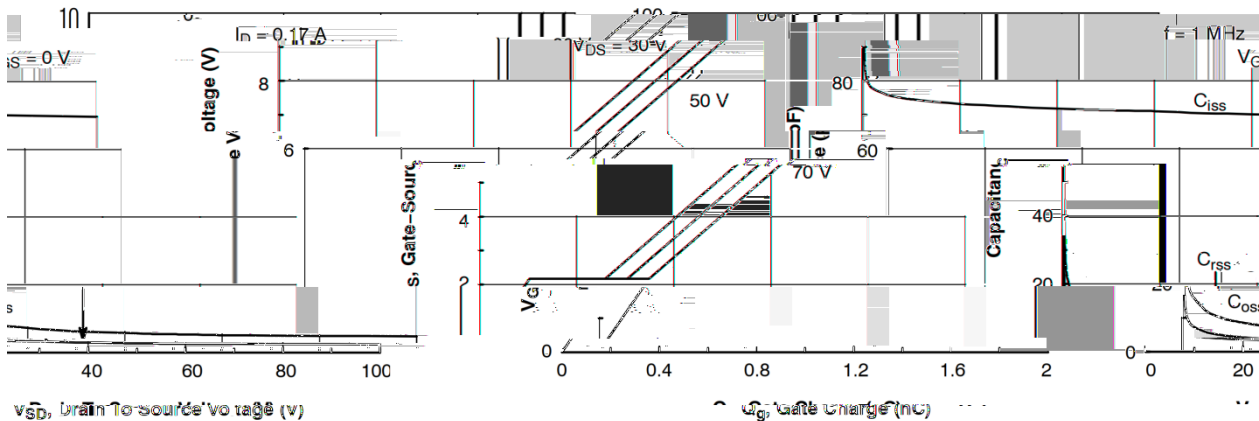


Figure 9: Capacitance Characteristics

Figure 10: Gate Charge Characteristics

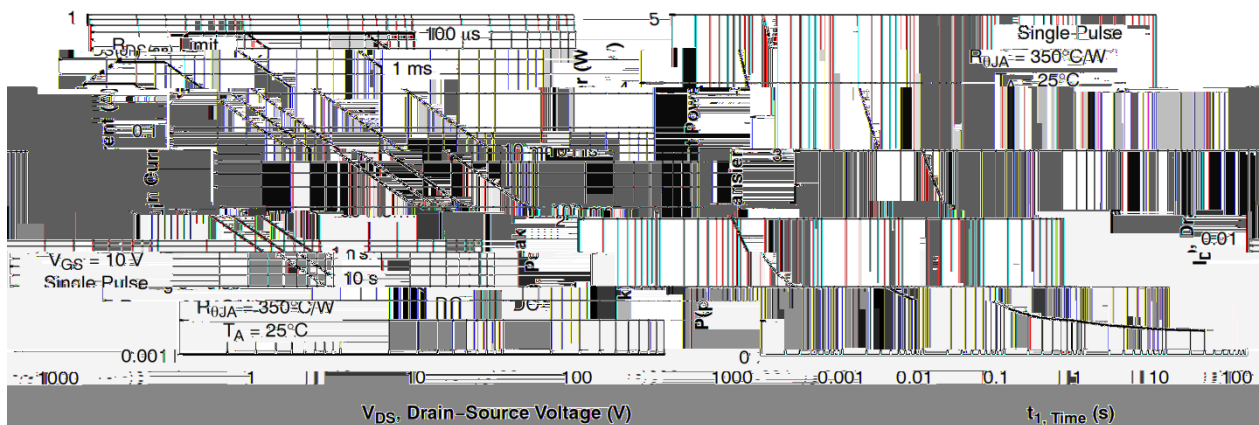


Figure 10: Gate Charge Characteristics

Figure 11: Transient Thermal Response

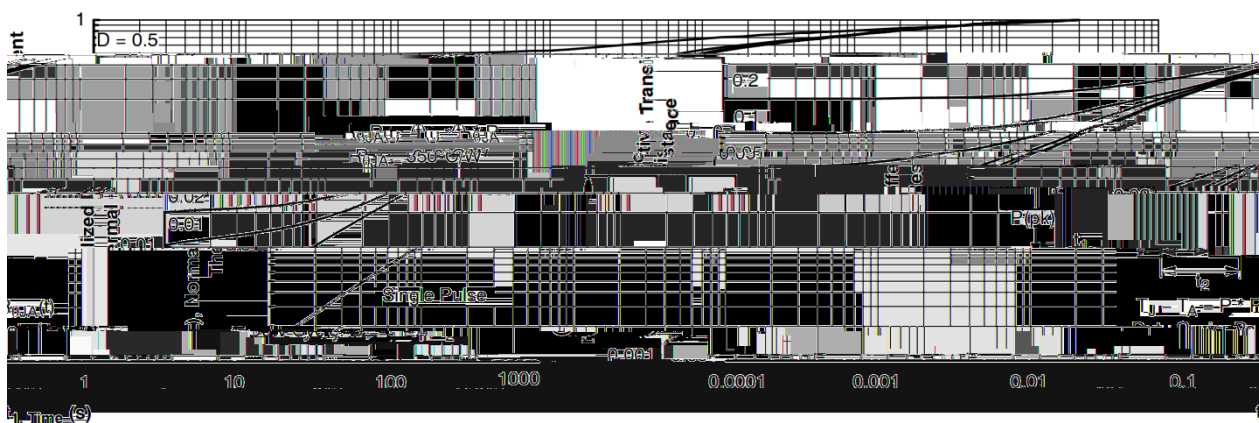
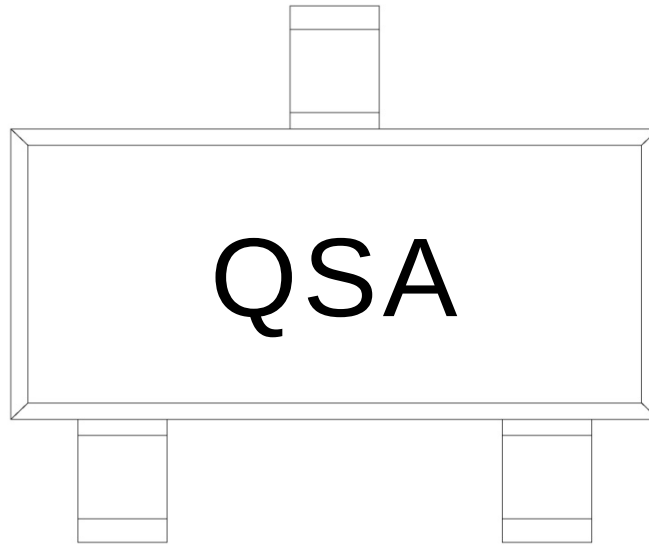


Figure 11: Transient Thermal Response

Figure 11: Transien

/ Marking Instructions

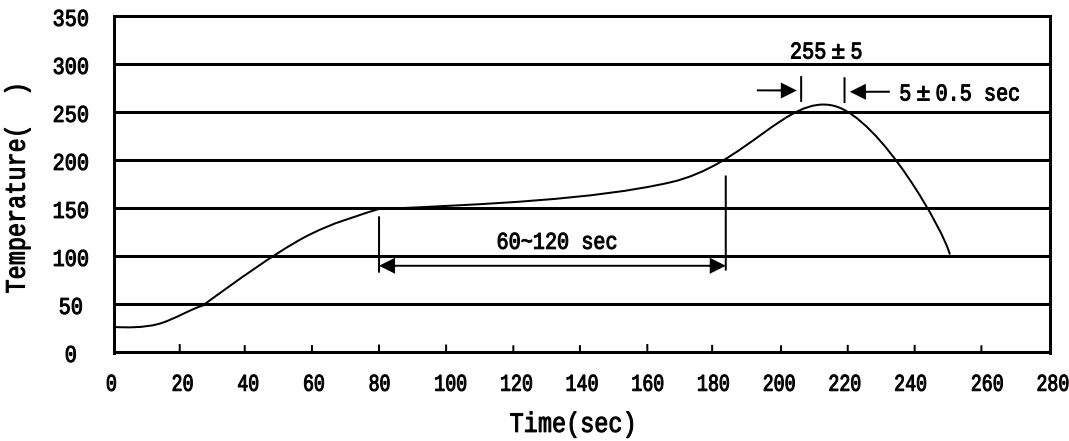


SA

Note:

SA: Product Type Code

() / Temperature Profile for IR Reflow Soldering(Pb-Free)



Note:

- 1

150 200

60 120sec;

1.Preheating:150~200 , Time:60~120sec.
- 2

255 5

5 0.5sec;

2.Peak Temp.:255 5 , Duration:5 0.5sec.
- 3

2 10 /sec.

3.Cooling Speed: 2~10 /sec.

/ Resistance to Soldering Heat Test Conditions

260 5 10 1 sec. Temp.:260±5℃ Time:10±1 sec

/ Packaging SPEC.

/ REEL

Package Type	Units					Dimension (unit mm ³)		
	Units/Reel	Reels/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Reel	Inner Box	Outer Box
SOT-23	3,000	10	30,000	6	180,000	7 ×8	180×120×180	390×385×205

/ Notices