

/ Descriptions

SOT-23 MOS
 P- CHANNEL MOSFET in a SOT-23 Plastic Package.

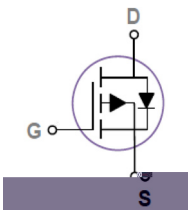
/ Features

MOSFET AEC-Q101
 Trench Power MOSFET technology, Low $R_{DS(ON)}$, Low Gate Charge, Qualified to AEC-Q101 Standards for High Reliability, HF Product.

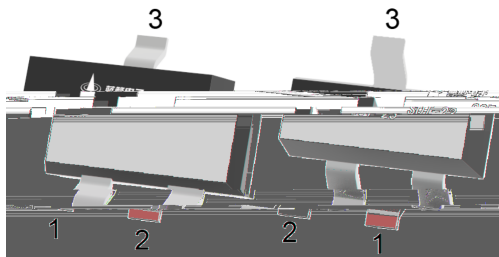
/ Applications

Primarily the display screen drive applications, Meet the stringent requirements of automotive applications.

/ Equivalent Circuit



/ Pinning



PIN1 G PIN 2 S PIN 3 D

/ Marking

Marking	Q305
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/ Absolute Maximum Ratings(Ta=25)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	± 12	V
Drain Current – Continuous	$I_D(T_C=25^\circ\text{C})$	-4.3	A
Pulsed Drain Current	I_{DM}	-18	A
Power Dissipation	P_D	1.3	W
Operating and Storage Temperature Range	T_J, T_{stg}	-55 to 150	
Junction-to-Ambient	$t \leq 10$	90	/W
Junction-to-Ambient	Steady-State		
Junction-to-Lead	Steady-State		
	$R_{\theta JA}$	125	
	$R_{\theta JL}$	80	

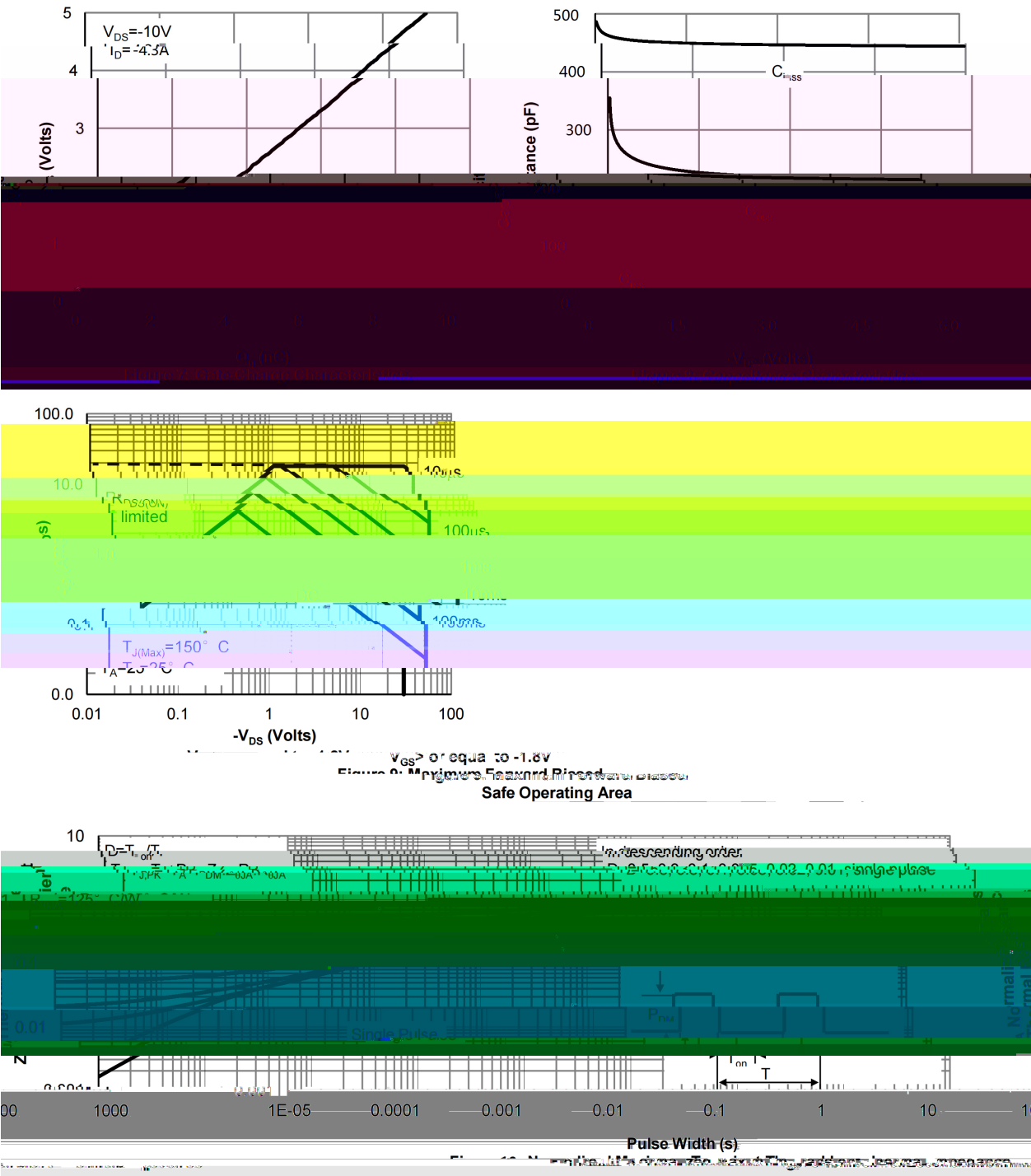
/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain–Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V$ $I_D=-250\mu A$	-20	-23		V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=-250\mu A$	-0.4	0.75	-1.0	V
Static Drain–Source On–Resistance	$R_{DS(on)1}$	$V_{GS}=-4.5V$ $I_D=-4.3A$		33	40	m Ω
	$R_{DS(on)2}$	$V_{GS}=-2.5V$ $I_D=-3.0A$		45	60	m Ω
	$R_{DS(on)3}$	$V_{GS}=-1.8V$ $I_D=-2.0A$		63	85	m Ω
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-20V$ $V_{GS}=0V$			1	μA
Gate–Body Leakage.	I_{GSS}	$V_{GS}=\pm 12V$ $V_{DS}=0V$			± 0.1	μA
Drain–Source Diode Forward Voltage	V_{SD}	$I_S=-1A$ $V_{GS}=0V$			-1.2	V
Gate Resistance	R_g			22		Ω
Input Capacitance	C_{iss}	$V_{DS}=-5V$ $V_{GS}=0V$ $f=1.0MHz$		450		pF
Output Capacitance	C_{oss}			220		
Reverse Transfer Capacitance	C_{rss}			90		
Total Gate Charge	$Q_{g(4.5V)}$	$V_{GS}=-4.5V$ $V_{DS}=-10V$ $I_D=-4.3A$		8.8		nC
Gate Source Charge	Q_{gs}			1.2		
Gate Drain Charge	Q_{gd}			2.5		

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=-4.5V$ $V_{DS}=-10V$ $R_L=2.22\Omega$ $R_{GEN}=3\Omega$		12		ns
Turn-On Rise Time	t_r			11.3		
Turn-Off Delay Time	$t_{d(off)}$			80		
Turn-Off Fall Time	t_f			32		

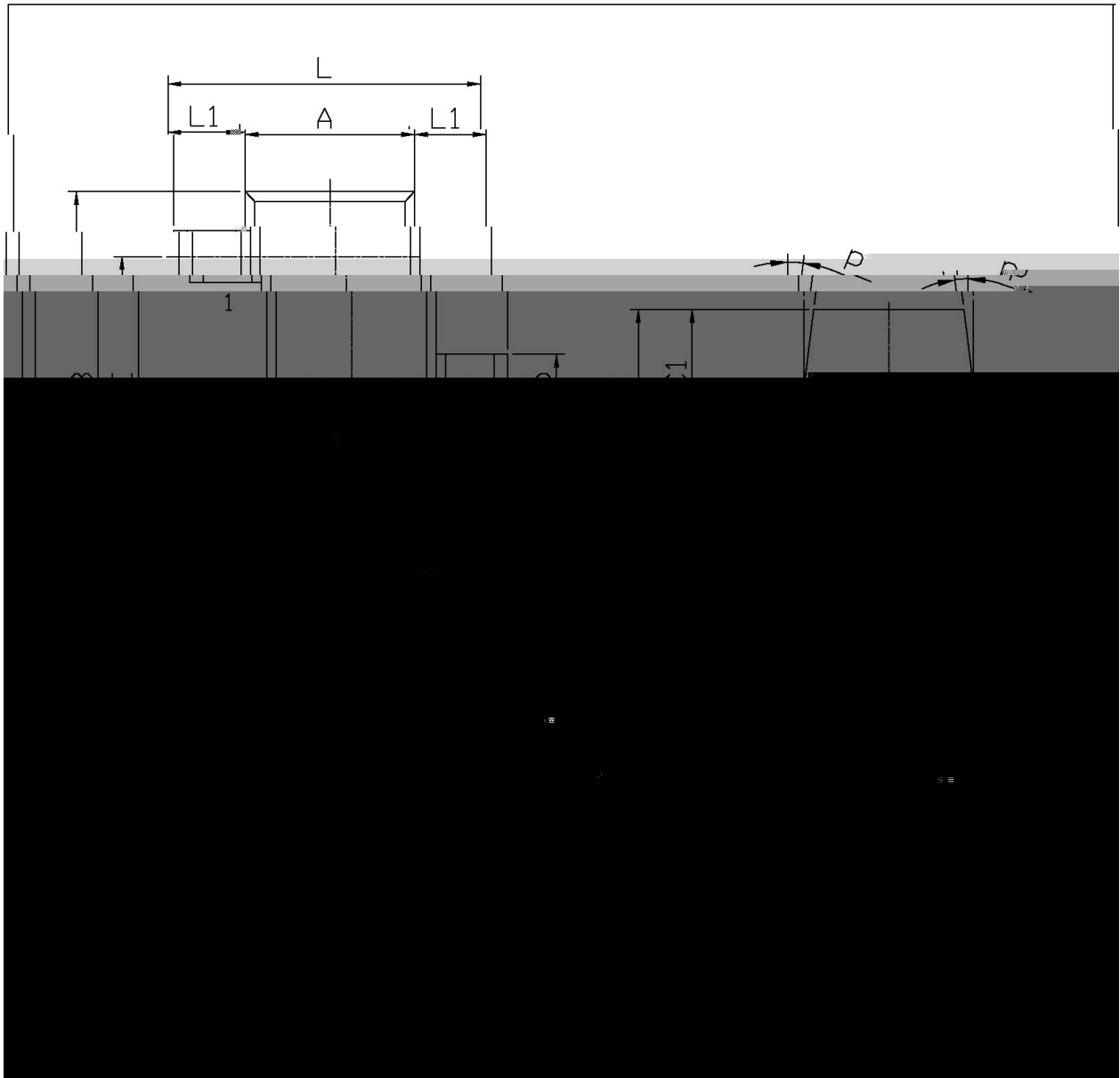
/ Electrical Characteristic Curve



/ Package Dimensions

SOT-23

单位: mm



/ Marking Instructions



Q

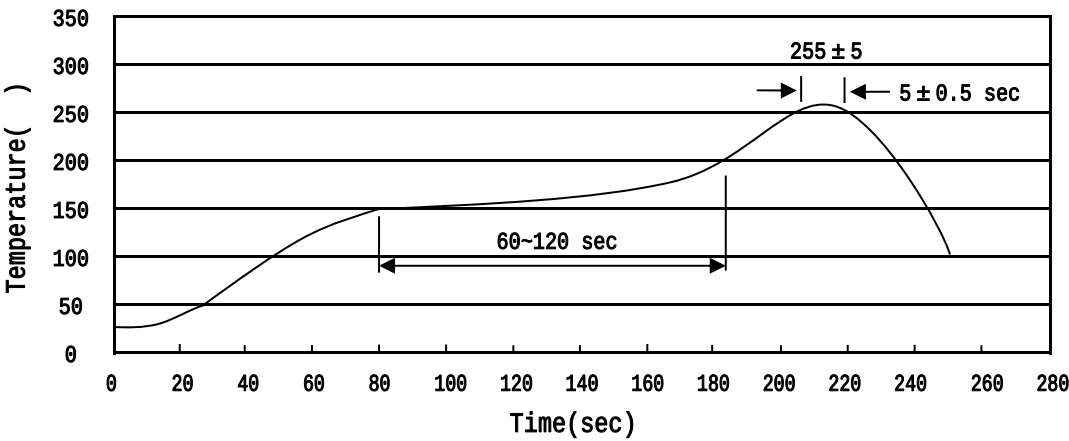
305:

Note:

Q: Automobile halogen-free product Code

305 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	4	120,000	7 ×8	210×205×205	445×435×230

/ Notices