/ Descriptions

SOT-23 MOS

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

/ Features

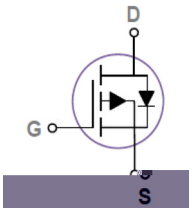
MOSFET AEC-Q101

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

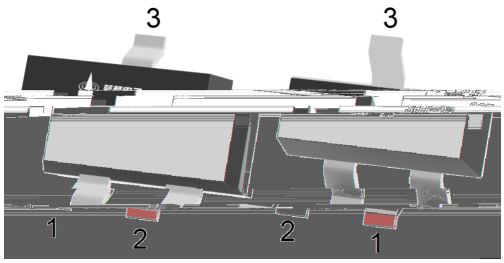
/ Applications

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

/ 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)	-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 ≤ 10	$R_{\theta JA}$	90	/W
Junction-to-Ambient	Steady-State		125	
Junction-to-Lead	Steady-State	$R_{\theta JL}$	80	

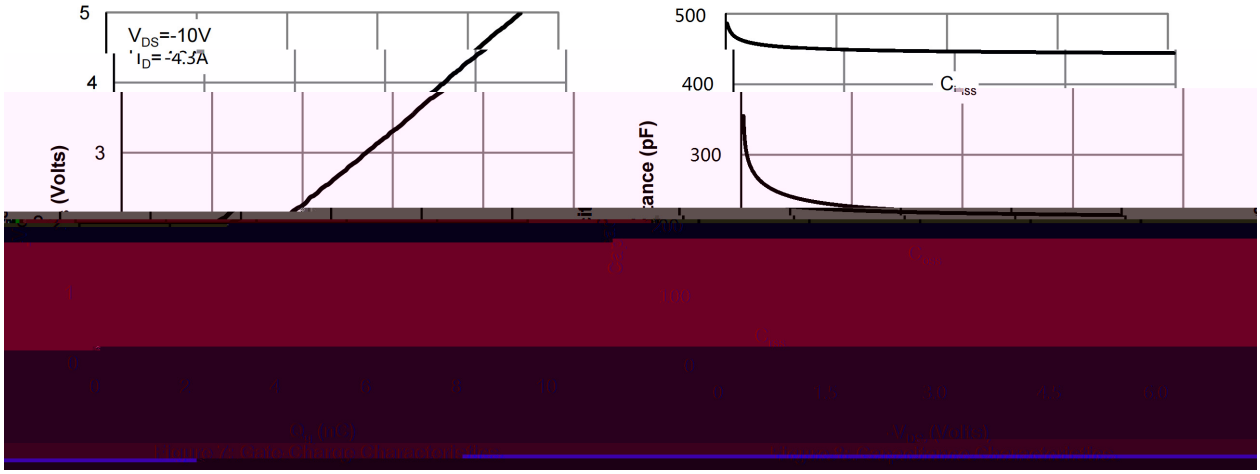
/ Electrical Characteristics(Ta=25)

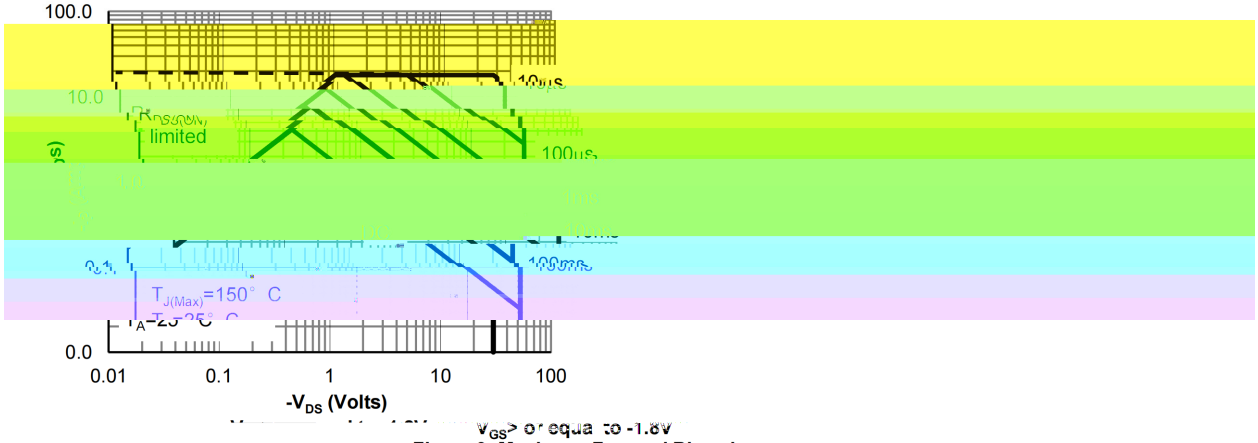
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain–Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V I_D=-250μA	-20	-23		V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=-250μA	-0.4	0.75	-1.0	V
Static Drain–Source On–Resistance	$R_{DS(on)1}$	V_{GS}=-4.5V I_D=-4.3A		33	40	mΩ
	$R_{DS(on)2}$	V_{GS}=-2.5V I_D=-3.0A		45	60	mΩ
	$R_{DS(on)3}$	V_{GS}=-1.8V I_D=-2.0A		63	85	mΩ
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-20V V_{GS}=0V			1	μA
Gate–Body Leakage.	I_{GSS}	V_{GS}=±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=2.22Ω R_{GEN}=3Ω		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		

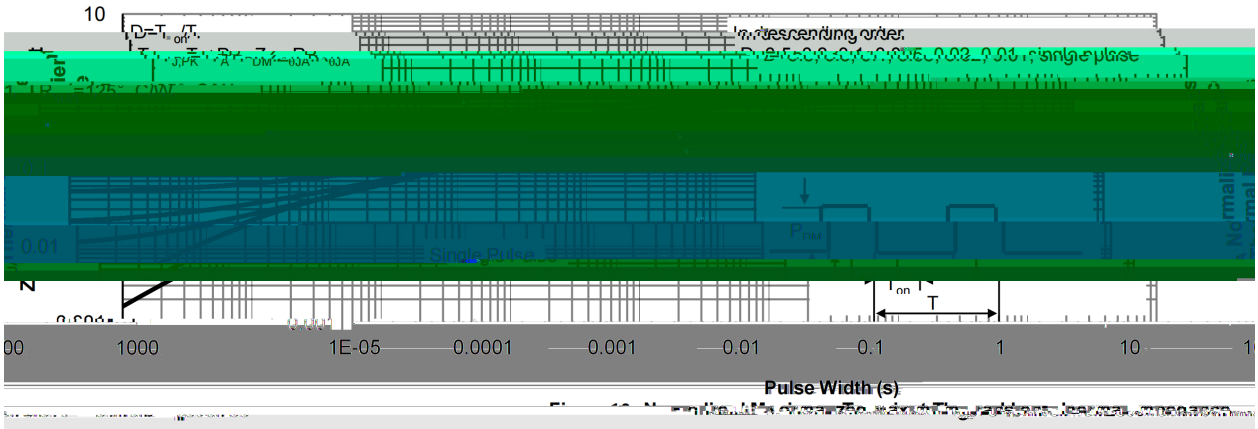
/ Electrical Characteristic Curve





V_{GS}> or equal to -1.8V

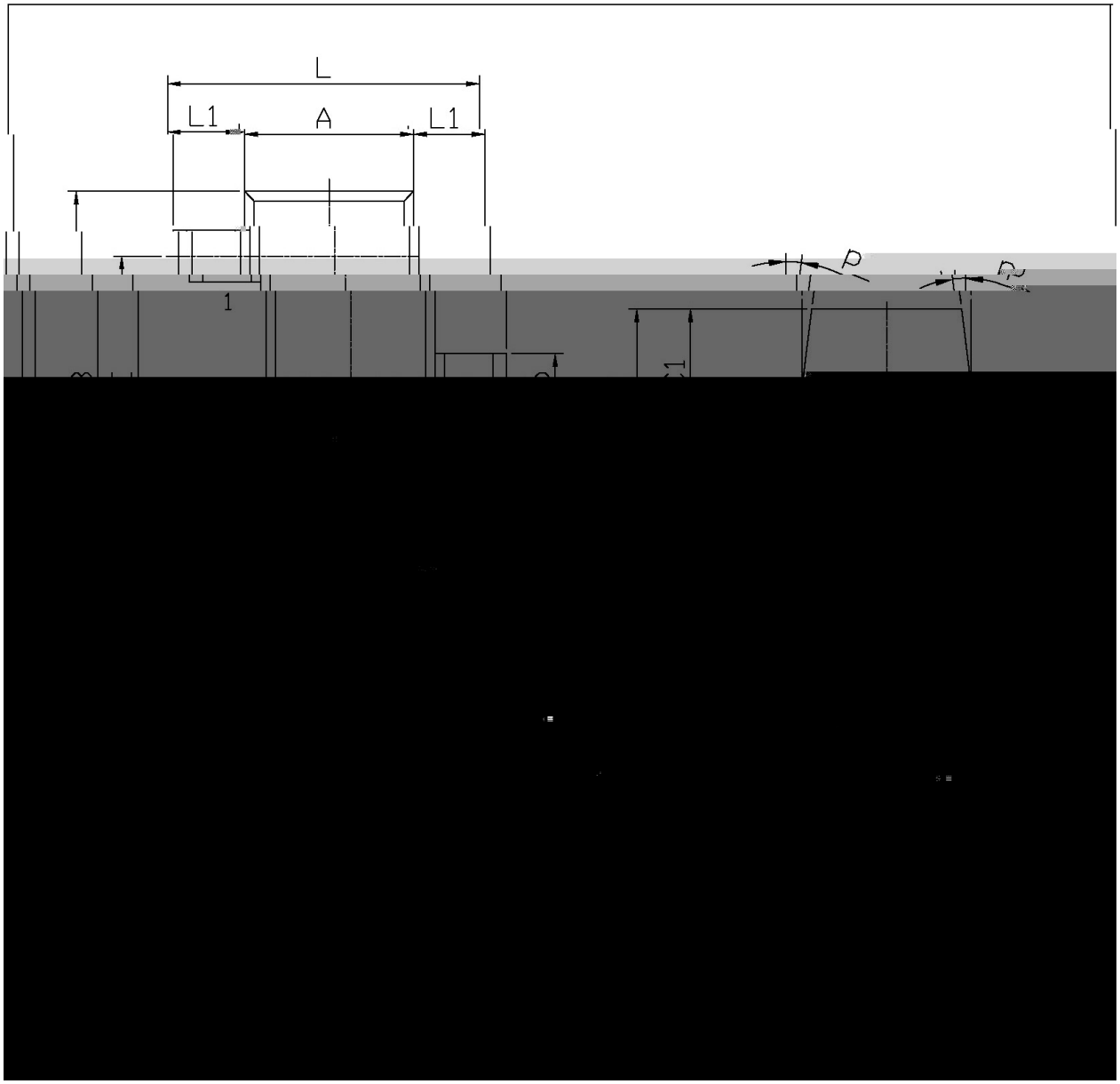
Safe Operating Area



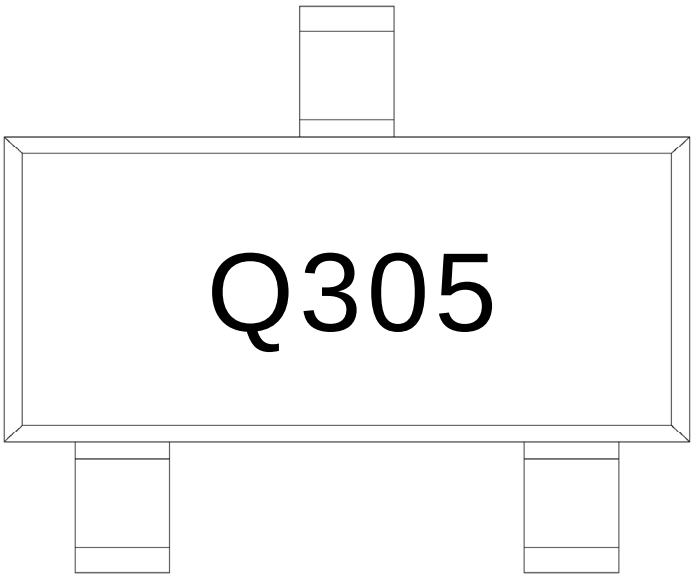
/ Package Dimensions

SOT-23

单位：mm



/ Marking Instructions



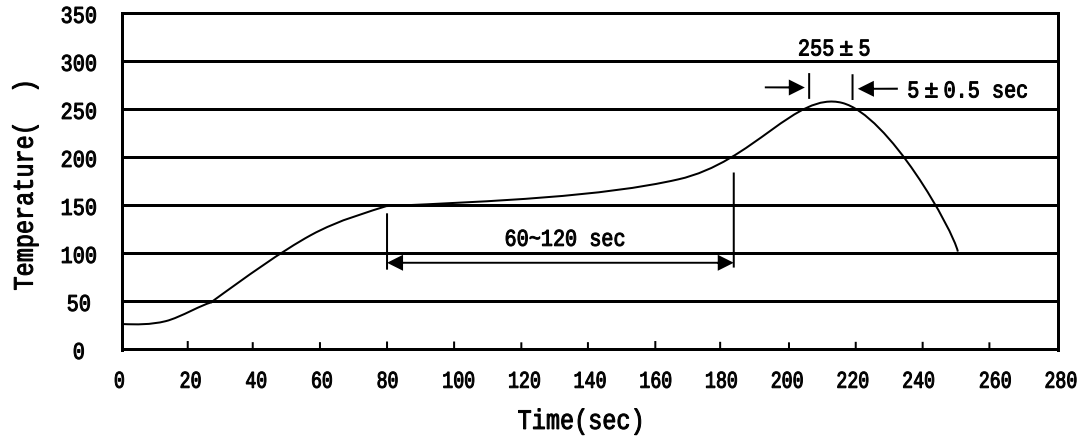
Q

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 mm³)
	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