

-20V P-Channel Enhancement Mode MOSFET

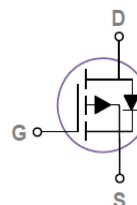
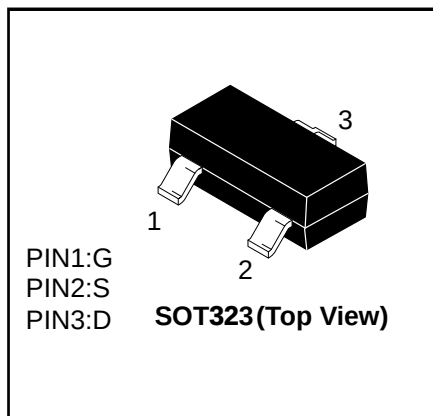
VDS= -20V

RDS(ON), Vgs@ -4.5V, Ids@ -2.3A<120.0mΩ

RDS(ON), Vgs@ -2.5V, Ids@ -2.0A< 180.0mΩ

Features

- ◆ Advanced trench process technology
- ◆ High Density Cell Design For Ultra Low On-Resistance
- ◆ Humidity sensitivity class:MSL-3



Maximum Ratings and Thermal Characteristics (TA = 25oC unless otherwise noted)

Parameter	Symbol	Maximum	Units
Drain to Source Voltage	V _{DSS}	-20	V
Gate to Source Voltage	V _{GSS}	± 12	V
Drain Current (DC)	I _D	-2.3	A
Drain Current (Pulse), PW≤300μs	I _{DP}	-8	A
Total Dissipation	P _D	0.8	W
Junction Temperature	T _j	150	°C
Storage Temperature	T _{stg}	-55 to +150	°C

Note 1: Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

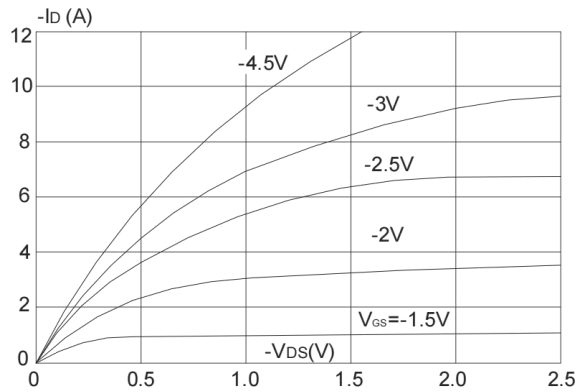
Model	Marking	Package	shipping
AM20CP023TC	2301	SOT323	3000/Tape&Reel

Electrical Characteristics(Ta=25°C)

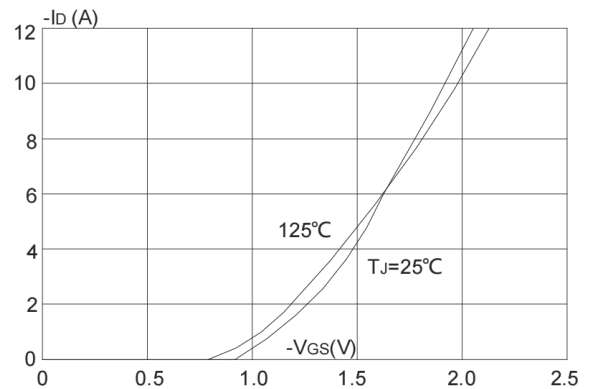
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = -250\mu A, V_{GS} = 0V$	-20	-22		V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -20V, V_{GS} = 0V$			-1	μA
Gate to Source Leakage Current	I_{GSS}	$V_{GS} = \pm 12V, V_{DS} = 0V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_{DS}=-250\mu A$	-0.5	-0.75	-1.2	V
Static Drain to Source On-State Resistance	$R_{DS(on)}$	$I_D = -2.3A, V_{GS} = -4.5V$		98	120	m Ω
		$I_D = -1A, V_{GS} = -2.5V$		125	180	m Ω
Input Capacitance	C_{iss}	$V_{GS}=0V,$ $V_{DS}=-10V,$ Frequency=1.0MHz		185		pF
Output Capacitance	C_{oss}			35		pF
Reverse Transfer Capacitance	C_{rss}			25		pF
Turn-ON Delay Time	$t_{d(on)}$	$V_{DD} = -10V, R_L = -5A,$ $R_G = 3.3\Omega, V_{GS} = -4.5V$		10		ns
Rise Time	t_r			30		ns
Turn-OFF Delay Time	$t_{d(off)}$			63		ns
Fall Time	t_f			50		ns
Total Gate Charge	Q_g	$V_{DS} = -10V,$ $V_{GS} = -4.5V,$ $I_D = -2.3A$		2.2		nC
	Q_{gs}			0.5		nC
	Q_{gd}			0.5		nC
Diode Forward Voltage	V_{FSD}	$I_S = -2.3A, V_{GS} = 0$		-0.55	-1.2	V

Note 3 : Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

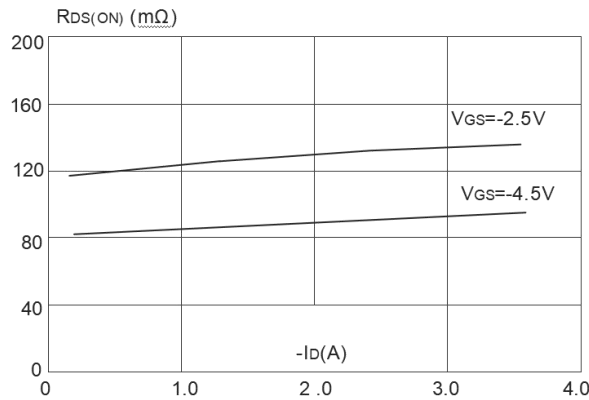
Electrical Characteristic Curve



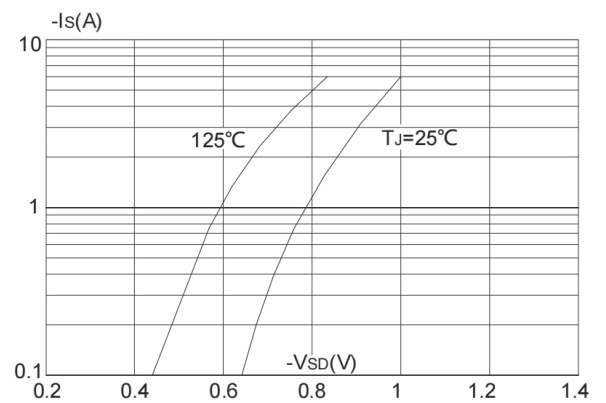
Output Characteristics



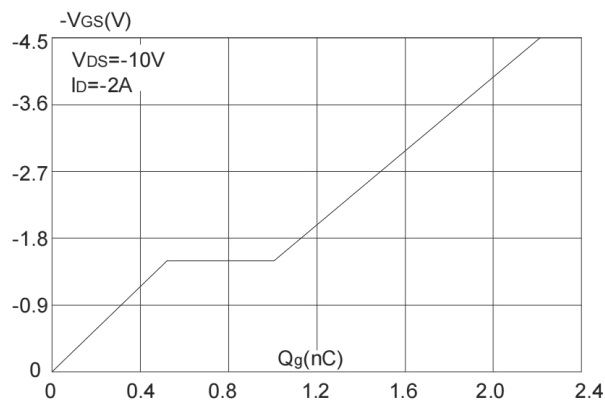
Typical Transfer Characteristics



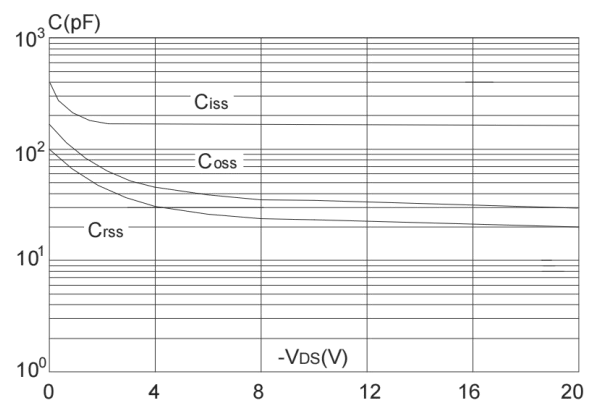
On-resistance vs . Drain Current



Body Diode Characteristics

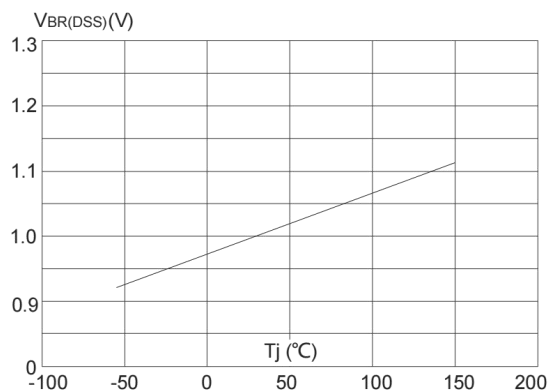


Gate Charge Characteristics

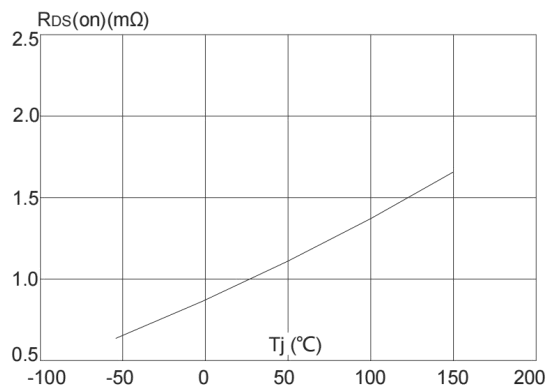


Capacitance Characteristics

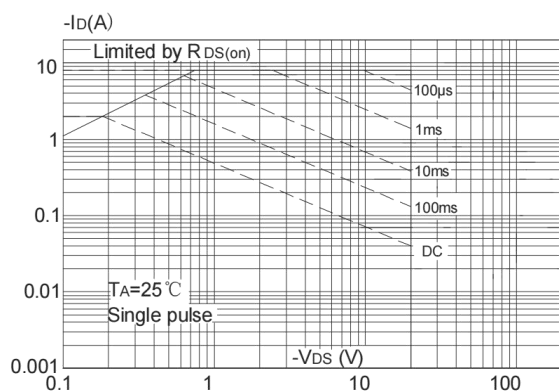
Electrical Characteristic Curve



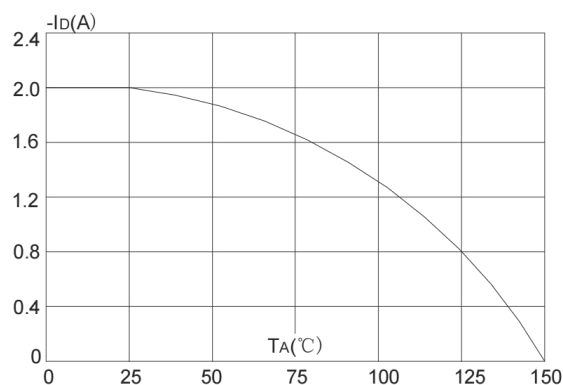
Normalized Breakdown Voltage vs.
Junction Temperature



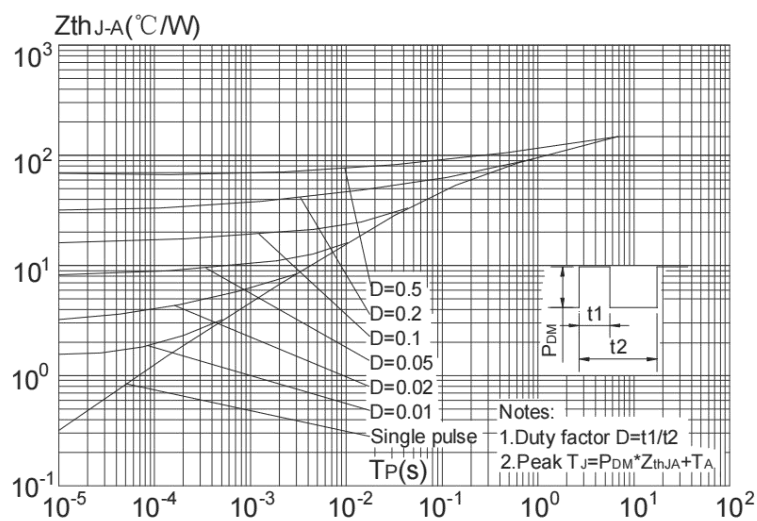
Normalized on Resistance vs.
Junction Temperature



Maximum Safe Operating Area



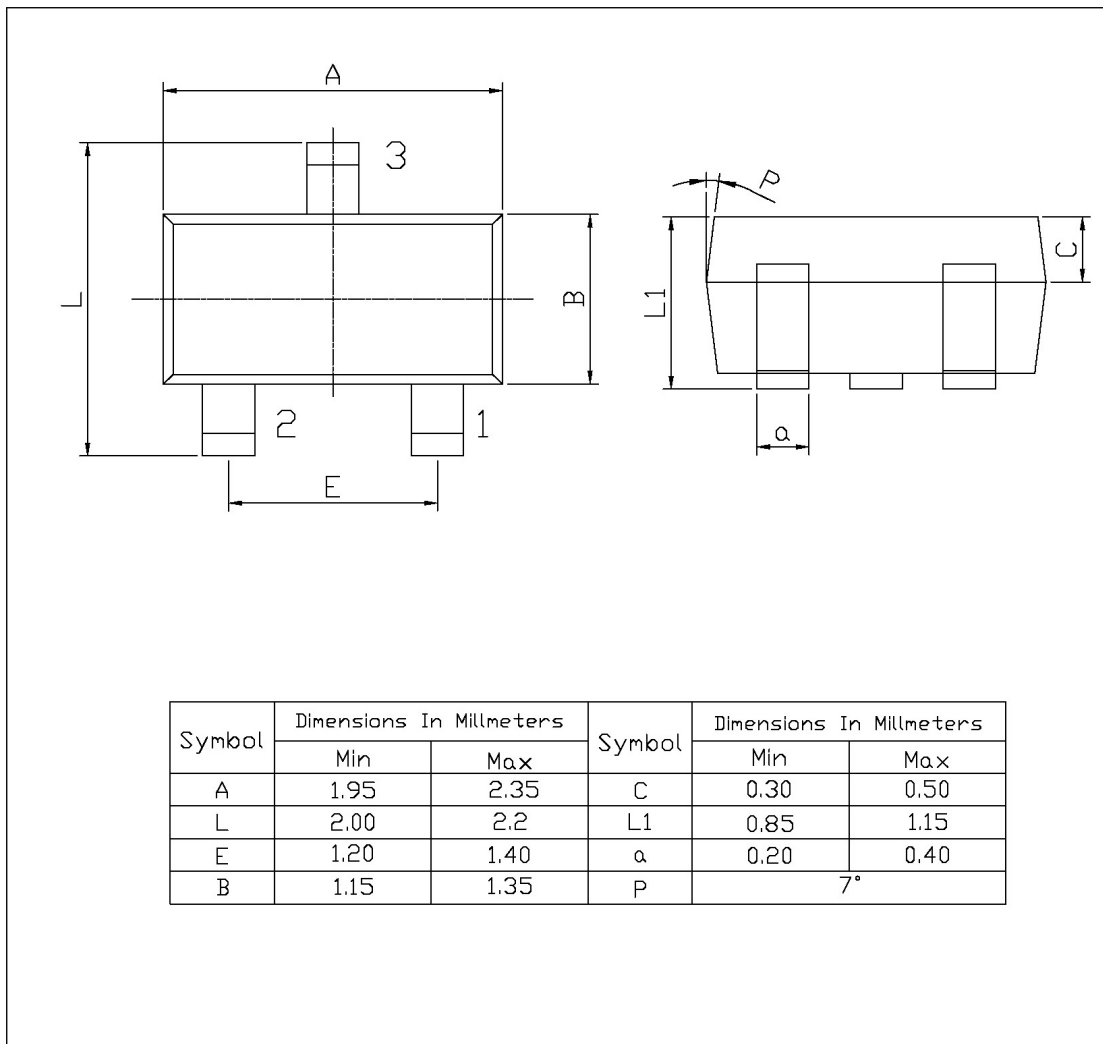
Maximum Continuous Drain Current vs.
Case Temperature



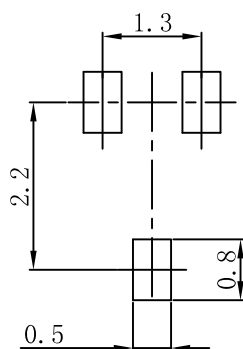
Maximum Effective Transient
Thermal Impedance, Junction-to-Case

Dimension outline Unit:mm

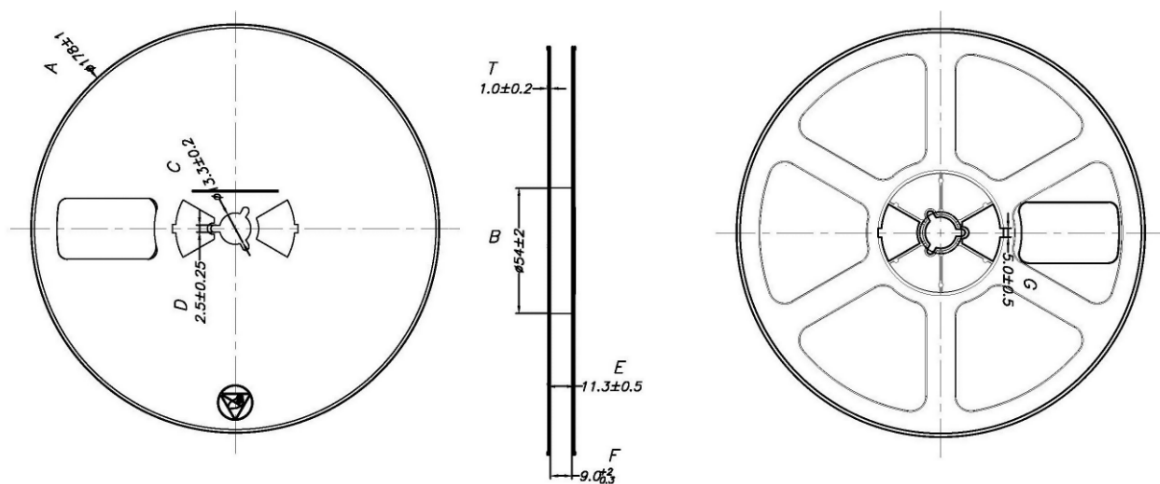
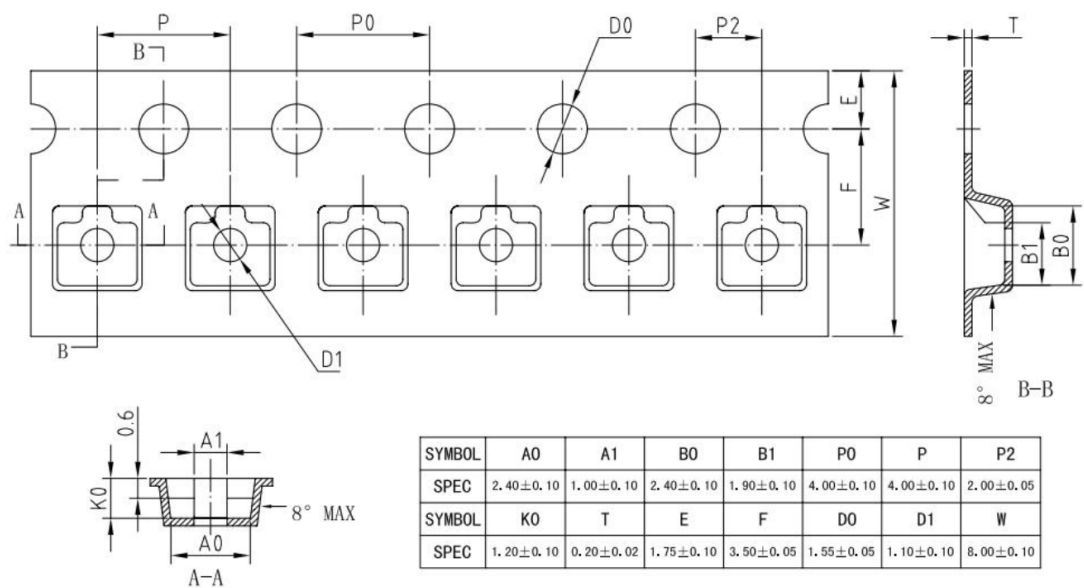
SOT-323



SOT-323 Suggested Pad Layout



Packaging Information



A±1	B±2	C±0.2	D±0.25	E±0.5	F ⁺² _{-0.3}	G±0.5	T±0.2
Ø178	Ø54	Ø13.3	2.5	11.3	9.0	5.0	1.0