

-20V P-Channel MOSFET

MOSFET Product Summary

V_{DS}	$R_{DS(ON)}(Typ.)$	I_D
-20V	41mΩ @ $V_{GS}=-4.5V$	-6.5A
	55mΩ @ $V_{GS}=-2.5V$	

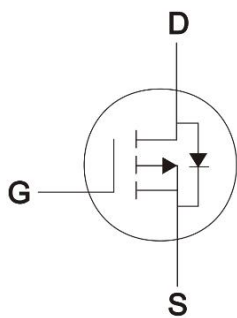
Description

The PM2305CL3 uses advanced Trench technology and designs to provide excellent $R_{DS(ON)}$ with low gate charge. It can be used in a wide variety of applications. The package form is SOT23-3L, which accord with the RoHS standard and Halogen Free standard.

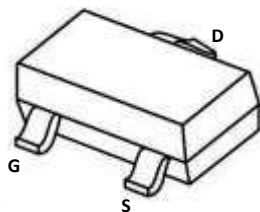
Features

- Low Gate Charge and $R_{DS(ON)}$
- Lead free product is acquired
- High Power and current handing capability

Dimensions and Pin Configuration



Circuit diagram



SOT23-3L

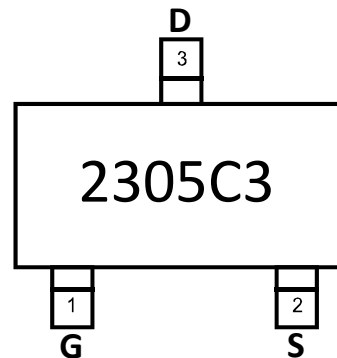
Mechanical Characteristics

- Package: SOT23-3L
- Case Material: "Green" Molding Compound
- Marking Information: See Below

Applications

- DC-DC converter
- Apply for high-frequency switching and synchronous rectification

Marking Information



2305C3 = Device Marking Code

Ordering Information

Part Number	Shipping	Reel Size
PM2305CL3	3000/Tape & Reel	7 inch

Absolute Maximum Ratings ($T_A=25^{\circ}C$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current	I_D	-6.5	A

Pulsed Drain Current _(note1)	I_{DM}	-16	A
Power Dissipation	P_D	1.1	W
Thermal Resistance from Junction to Ambient _(note1)	$R_{\theta JA}$	80	°C/W
Junction Temperature	T_J	-55~ +150	°C
Storage Temperature	T_{STG}	-55~ +150	°C

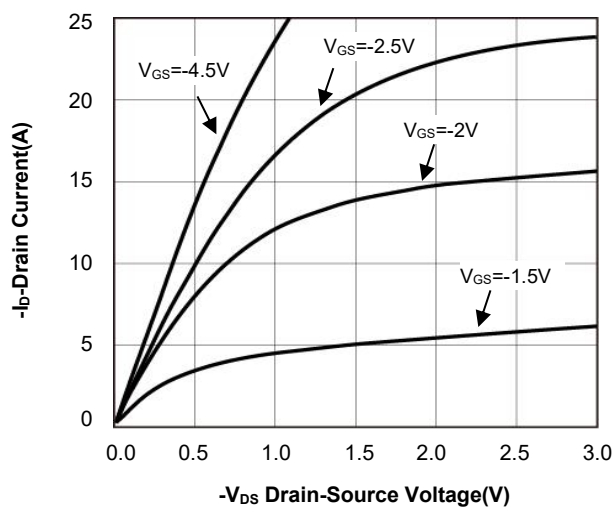
Electrical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-20	-	-	V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = -20V, V_{GS} = 0V$	-	-	-1	μA
Gate-body leakage current	I_{GSS}	$V_{GS} = \pm 12V, V_{DS} = 0V$	-	-	± 100	nA
Gate threshold voltage	$V_{GS(TH)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-	-0.7	-1.0	V
Drain-source on-resistance	$R_{DS(ON)}$	$V_{GS} = -4.5V, I_D = -3A$	-	41	46	m Ω
		$V_{GS} = -2.5V, I_D = -2A$	-	55	60	
Diode Forward voltage _(note1)	V_{SD}	$I_S = -5A, V_{GS} = 0V$	-	-	-1	V
Dynamic characteristics						
Input Capacitance	C_{iss}	$V_{DS} = -10V, V_{GS} = 0V, f = 1MHz$	-	854	-	pF
Output Capacitance	C_{oss}		-	150	-	
Reverse Transfer Capacitance	C_{rss}		-	90	-	
Switching Characteristics						
Turn-on delay time	$t_{d(on)}$	$V_{GS} = -4.5V, V_{DS} = -15V, R_L = 2.5\Omega, R_{GEN} = 3\Omega$	-	11	-	nS
Turn-on rise time	t_r		-	34	-	
Turn-off delay time	$t_{d(off)}$		-	55	-	
Turn-off fall time	t_f		-	51	-	
Total Gate Charge	Q_g	$V_{GS} = -4.5V, V_{DS} = -10V, I_D = -3A$		9.1		nC
Gate Source Charge	Q_{gs}			1.6		
Gate Drain Charge	Q_{gd}			2		

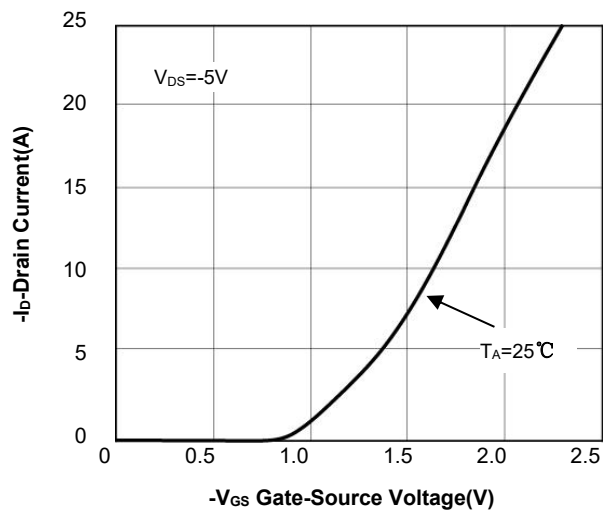
Notes:

1. Repetitive rating; pulse width limited by maximum junction temperature.
2. EAS condition: $T_J = 25^\circ\text{C}, V_{DD} = -20V, V_G = 10V, R_g = 25\Omega, L = 0.5mH$.

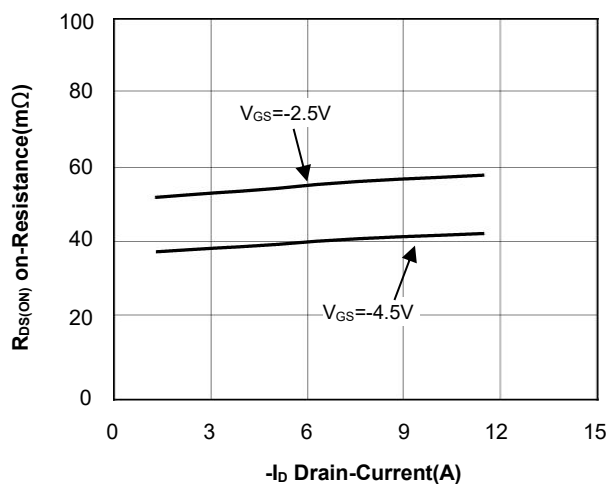
Typical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise specified)



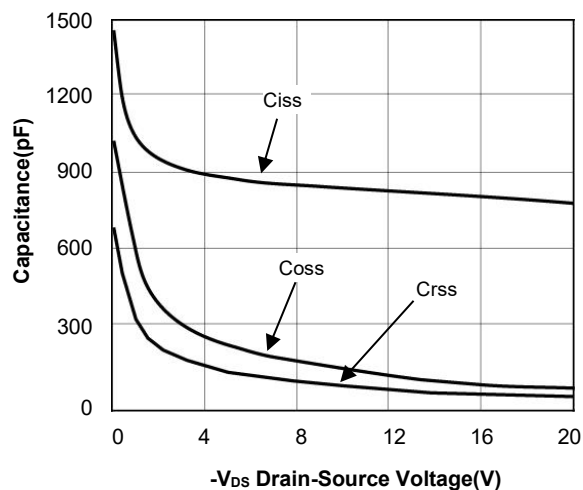
Drain Current vs. Drain-Source Voltage



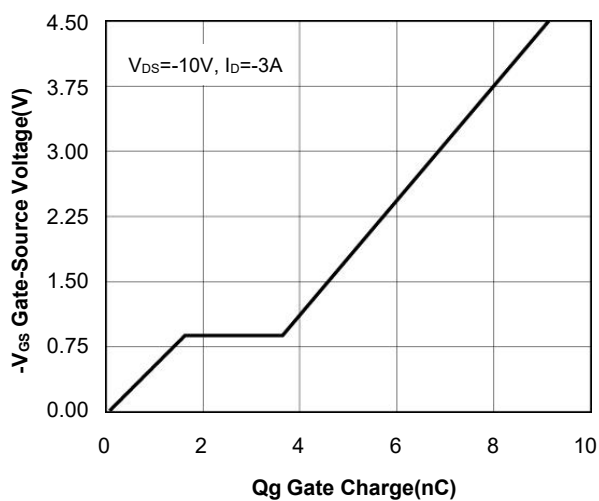
Drain Current vs. Gate-Source Voltage



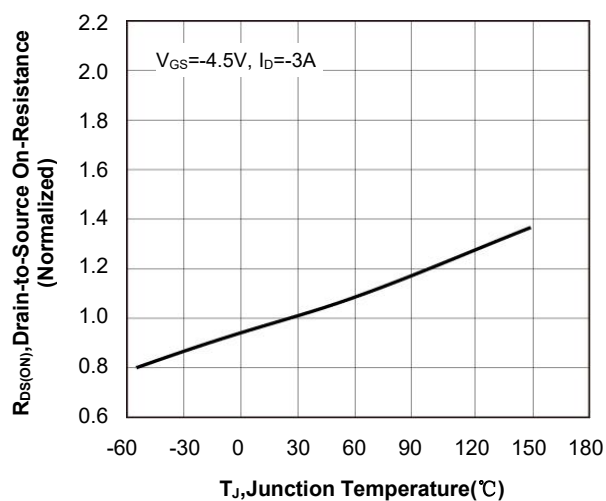
$R_{DS(ON)}$ On-Resistance vs. Drain-Current



Capacitance vs. Drain-Source Voltage

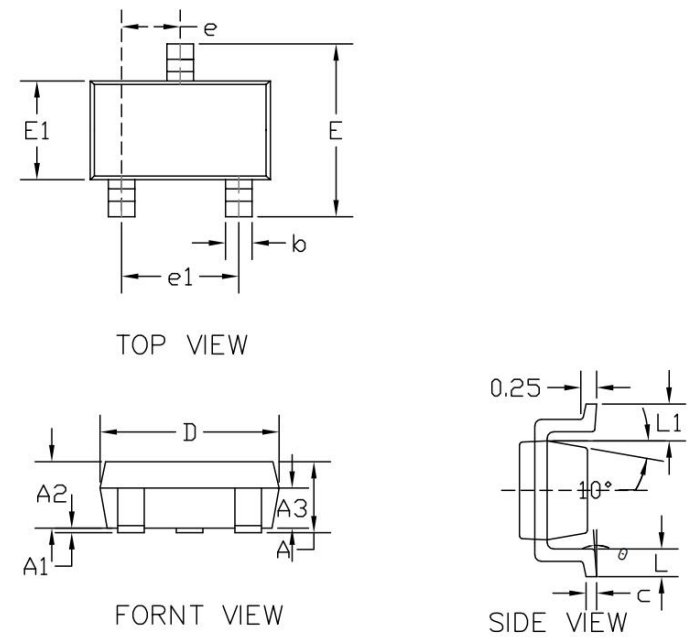


Drain Current vs. Drain-Source Voltage



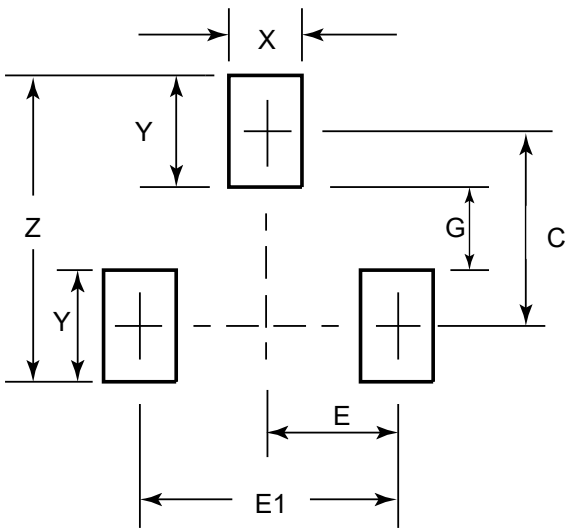
Normalized On-Resistance vs. Temperature

SOT23-3L Package Outline Drawing



SYM	MILLIMETERS		
	MIN	NOM	MAX
A	1.05	1.15	1.25
A1	0.01	0.06	0.11
A2	1.00	1.10	1.20
A3	0.60	0.65	0.70
b	0.35	0.40	0.45
c	0.12	0.15	0.18
D	2.82	2.92	3.02
E	2.65	2.80	2.95
E1	1.50	1.60	1.70
L	0.30	-	0.50
e	0.90	0.95	1.00
e1	1.80	1.90	2.00
θ	0°	4°	8°
L1	0.6REF		

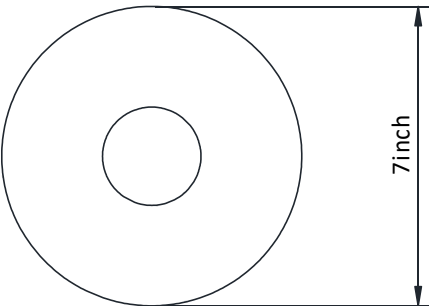
Suggested Land Pattern



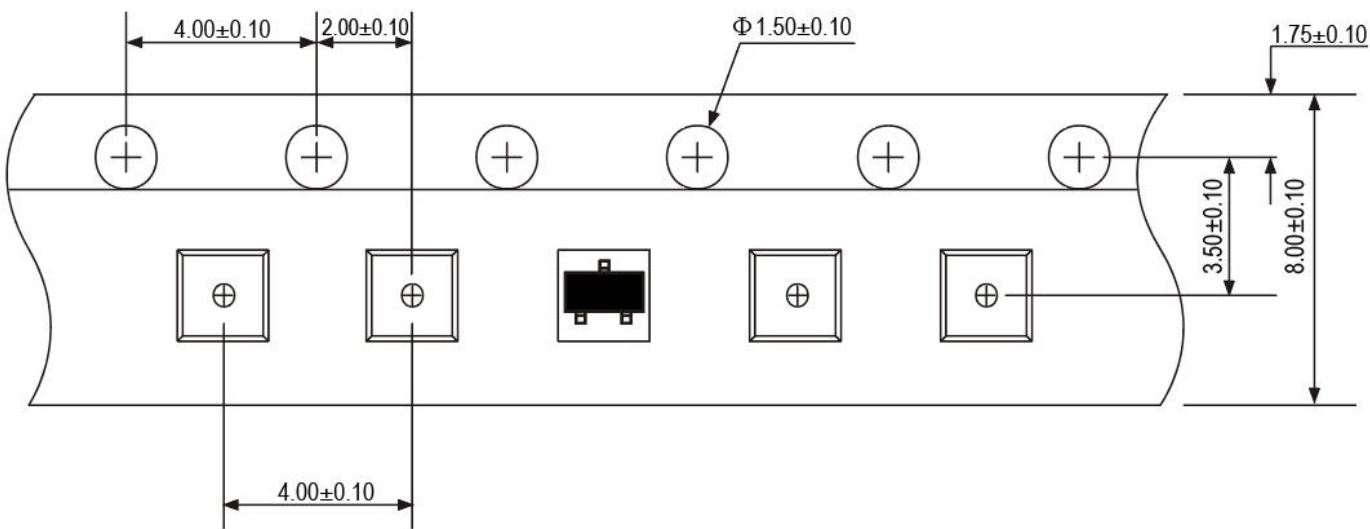
SYM	DIMENSIONS	
	MILLIMETERS	INCHES
C	2.20	0.087
E	0.95	0.037
E1	1.90	0.075
G	0.80	0.031
X	1.00	0.039
Y	1.40	0.055
Z	3.60	0.141

TAPE AND REEL INFORMATION

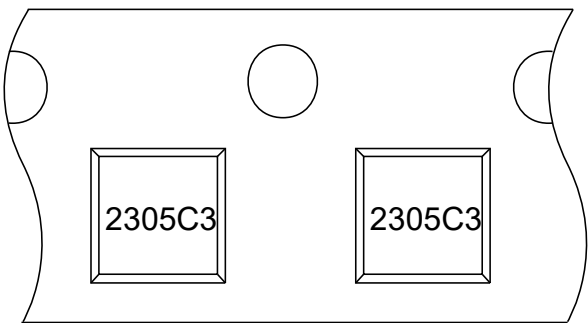
Reel Dimensions



Tape Dimensions



Unit:mm



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