Description

This is -40V -5.6A P-channel mosfet in a SOT-23 plastic package.

Mechanical Characteristics

- SOT-23 Package
- Marking : Making Code
- RoHS Compliant

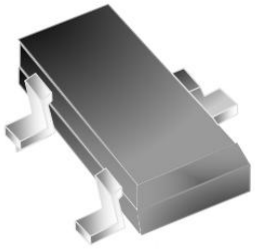
Features

- Small Single MOSFETs
- VDS= -40V, ID = -5.6A
- RDS(on) < 55mΩ @ VGS = -10V
- RDS(on) < 68mΩ @ VGS = -4.5V
- Trench LV MOSFET Technology

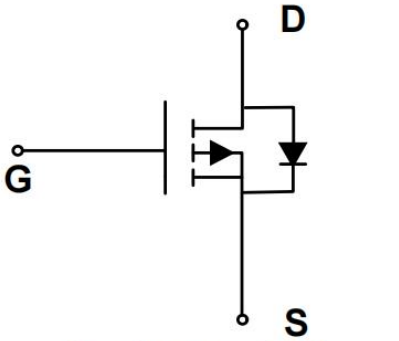
V_{DSS}	$R_{DS(on)(typ)}$	I_D
-40V	45mΩ	-5.6A

Schematic & PIN Configuration

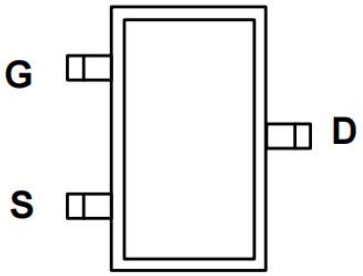
RoHS compliant



SOT-23



Device symbol



SOT-23(Top View)

Absolute Maximum Rating (TA=25° C unless otherwise noted)

Rating		Symbol	Value	Units
Drain-Source Voltage		V_{DS}	-40	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_A=25°C	I_D	-5.6	A
Pulsed Drain Current[1]		I_{DM}	-22	A
Power Dissipation		P_D	1.9	W
Junction and Storage Temperature Range		T_J ,T_{STG}	-55 to 150	°C

Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal Resistance from Junction to Ambient[2]	$R_{\theta JA}$	65.8	°C/W

Electrical Characteristics (TJ=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}= 0V, I_D= -250μA	-40	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}= -40V, V_{GS}= 0V	-	-	-1	μA
Gate-Body Leakage	I_{GSS}	V_{DS}= 0V, V_{GS}= ±20V	-	-	±100	nA
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS}= V_{GS}, I_D= -250μA	-1.2	-1.7	-2.1	V
Drain-Source on-Resistance[3]	$R_{DS(on)}$	V_{GS}= -10V, I_D= -5.6A	-	45	55	mΩ
		V_{GS}= -4.5V, I_D= -3A	-	57	68	
Dynamic Characteristics[4]						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = -20V, f=1.0MHz	-	800	-	pF
Output Capacitance	C_{oss}		-	77	-	
Reverse Transfer Capacitance	C_{rss}		-	65	-	
Switching Characteristics[4]						
Total Gate Charge	Q_g	V_{GS}= -10V, V_{DS}= -20V, I_D= -5A	-	16	-	nC
Gate-Source Charge	Q_{gs}		-	4.2	-	
Gate-Drain Charge	Q_{gd}		-	4	-	
Turn-on Delay Time	$t_{d(on)}$	V_{DS}= -20V, V_{GS}= -10V I_D= -5A, R_G= 3Ω	-	6	-	ns
Rise Time	t_r		-	7.8	-	
Turn-off Delay Time	$t_{d(off)}$		-	25	-	
Fall Time	t_f		-	8.5	-	
Drain-Source Body Diode Characteristics						
Diode Forward Voltage[3]	V_{SD}	I_S= -1A, V_{GS}=0V	-	-	-1.2	V
Continuous Source Current	I_S		-	-	-5.6	A

Notes:

1. Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)}$=150°C.
2. The data tested by surface mounted on a 1 inch2 FR-4 board with 2OZ copper, The value in any given application depends on the user's specific board design.
3. Pulse Test: Pulse width≤300μs, duty cycle≤2%.
4. This value is guaranteed by design hence it is not included in the production test.

Typical Characteristics

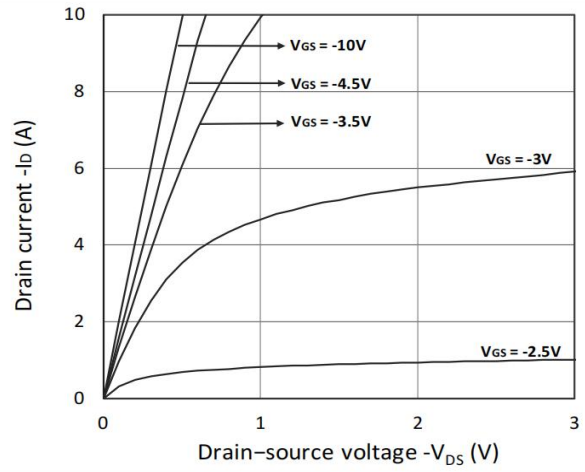


Figure 1. Output Characteristics

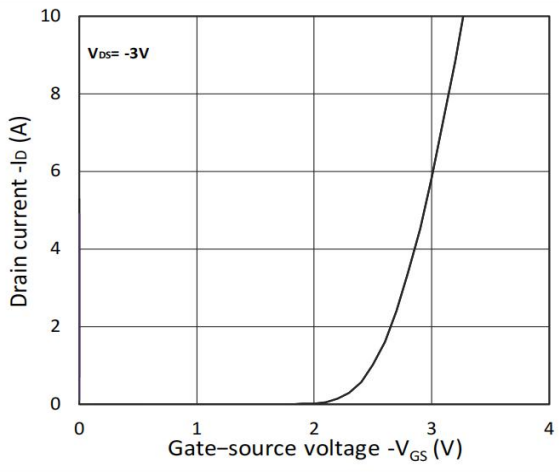


Figure 2. Transfer Characteristics

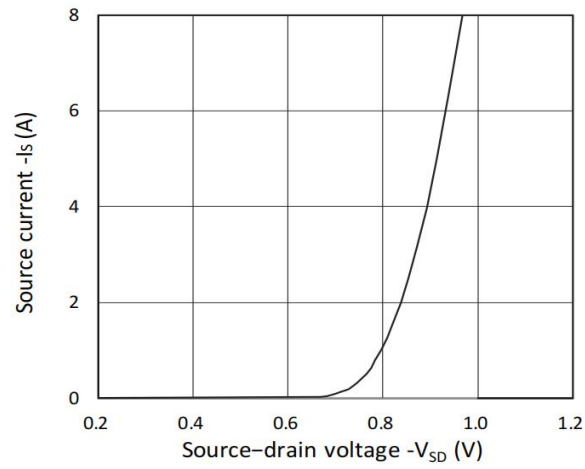


Figure 3. Forward Characteristics of Reverse

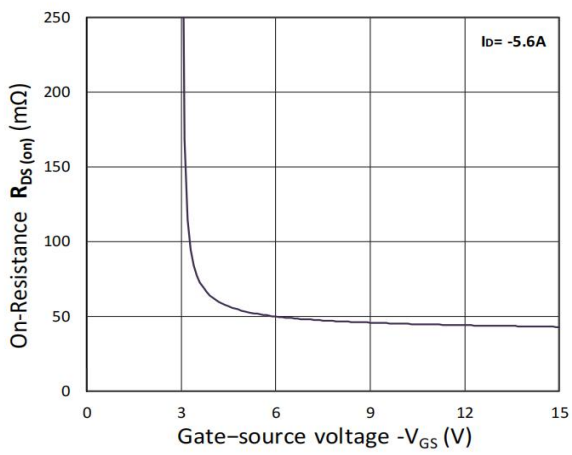


Figure 4. $R_{DS(ON)}$ vs. V_{GS}

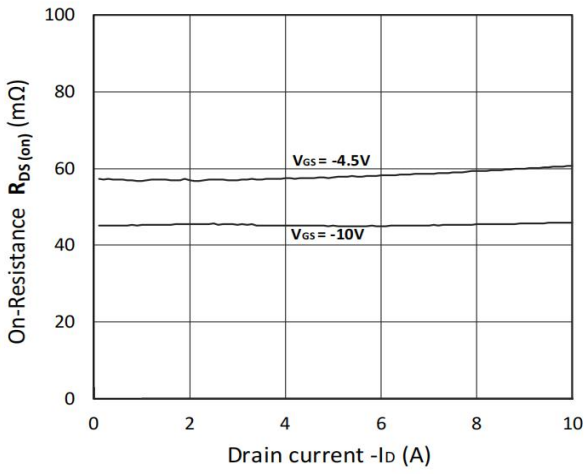


Figure 5. $R_{DS(ON)}$ vs. I_D

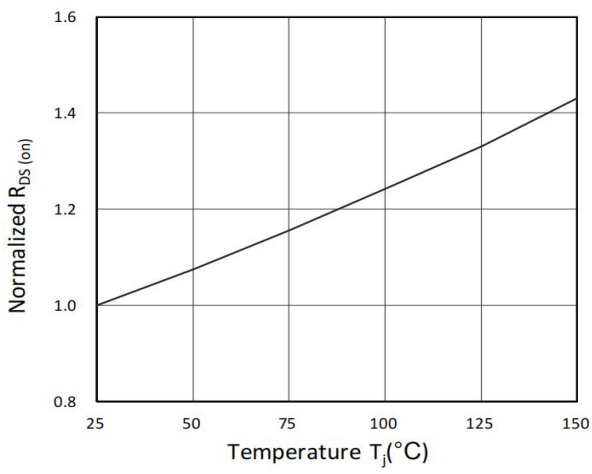


Figure 6. Normalized $R_{DS(on)}$ vs. Temperature

Typical Characteristics

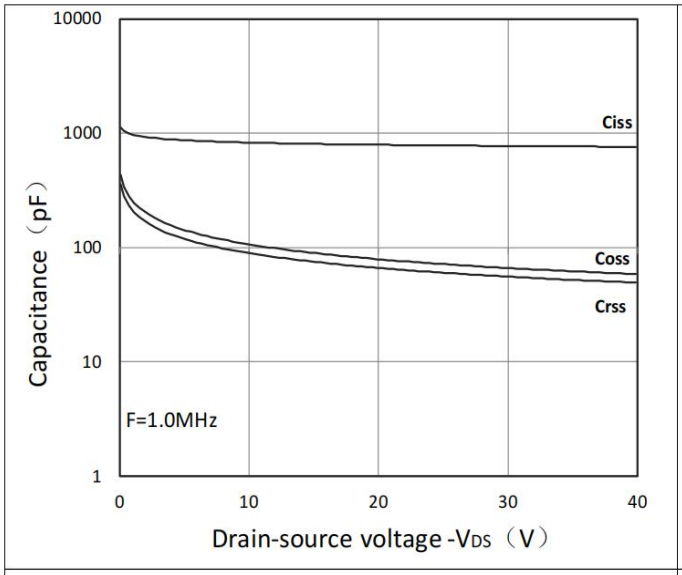


Figure 7. Capacitance Characteristics

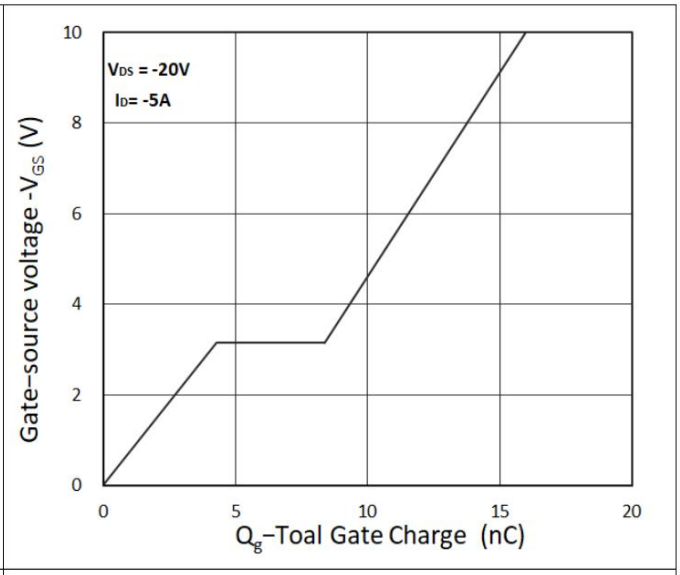
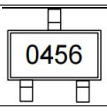


Figure 8. Gate Charge Characteristics

Marking Instructions

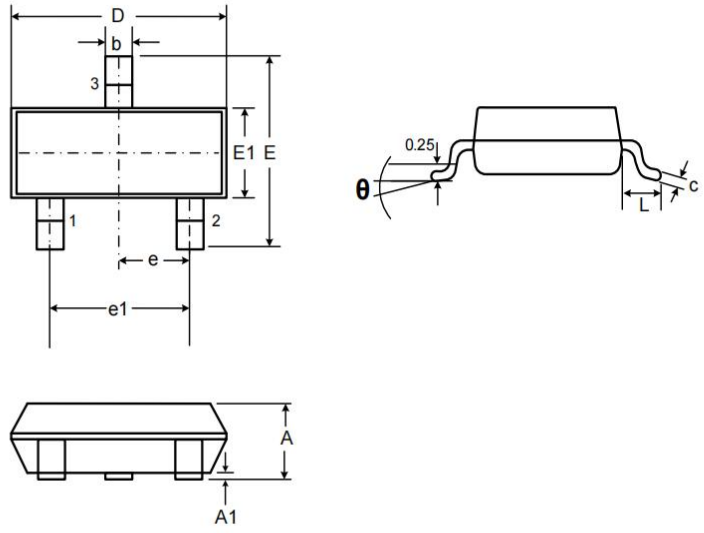
Part Number	CT056P04MA
Marking Code	

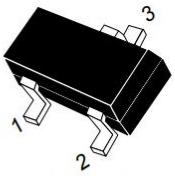
Package Information

Qty：3k/Reel

Outline Drawing – SOT-23

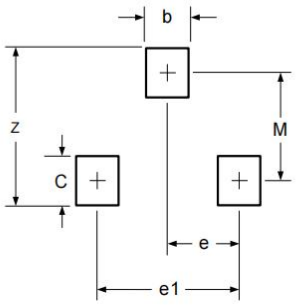
PACKAGE OUTLINE





SOT-23

DIMENSIONS				
SYMBOL	MILLIMETER		INCHES	
	MIN	MAX	MIN	MAX
A	0.90	1.15	0.035	0.045
A1	0.00	0.10	0.000	0.004
b	0.30	0.50	0.012	0.020
c	0.08	0.15	0.003	0.006
D	2.80	3.00	0.110	0.118
E	2.25	2.55	0.089	0.100
E1	1.20	1.40	0.047	0.055
e	0.95 BSC		0.037BSC	
e1	1.80	2.00	0.071	0.079
L	0.55REF		0.022REF	
θ	0°	8°	0°	8°



DIMENSIONS		
DIM	INCHES	MILLIMETERS
M	0.080	2.02
C	0.032	0.80
Z	0.111	2.82
e	0.037 BSC	0.95 BSC
e1	0.075 BSC	1.90 BSC
b	0.032	0.80

Notes

1. Dimensioning and tolerances per ANSI Y14.5M, 1985.
2. Controlling Dimension: Inches
3. Pin 3 is the cathode (Unidirectional Only).
4. Dimensions are exclusive of mold flash and metal burrs.