Description

This 60V 300mA N-Channel MOSFET in a SOT-23 Plastic Package.

Applications

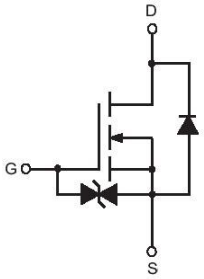
Intended for use in general purpose switching and phase control applications.

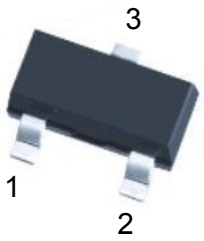
Features

- Sensitive gate trigger current and Low Holding current.
- ESD protected up to 2KV,
- Halogen-Free Product.

V_{DSS}	$R_{DS(on)}$ Typ	I_D
60V	1.7Ω	300mA

Equivalent Circuit & Pinning





PIN1：Gate　　PIN 2：Source　　PIN 3：Drain

Absolute Maximum Ratings(Ta=25℃)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DSS}	60	V
Drain-Gate Voltage	V_{DGR}	60	V
Drain Current - Continuous	$I_{D\ (Ta=25℃)}$	300	mA
	$I_{D\ (Ta=85℃)}$	210	
Drain Current - Pulsed(Note 1)	I_{DM}	1200	mA
Gate-Source Voltage - Continuous	V_{GSS}	±20	V
Power Dissipation	P_D	350	mW
Junction Temperature Range	T_j	150	℃
Storage Temperature Range	T_{stg}	-55～150	℃
Maximum Junction-to-Ambient(Note 2)	$R_{\theta JA(Steady\ State)}$	300	℃/W
	$R_{\theta JA(t\leq 5s)}$	92	

Note 1) Pulse Width10us, Duty Cycle 1%

Note 2)Surface−mounted on FR4 board using 1 sq in pad size with 1 oz Cu

Electrical Characteristics(Ta=25℃)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain–Source Breakdown Voltage	V_{DSS}	V_{GS}=0 I_D=250μA	60			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{GS}=0 V_{DS}=60V			1.0	μA
Gate-Source Leakage current	I_{GSS}	V_{DS}=0V V_{GS}=±20V			±10	μA
Static Drain-Source On-Resistance	$R_{DS(on)(1)}$	V_{GS}=10V I_D=0.5A			2.3	Ω
	$R_{DS(on)(2)}$	V_{GS}=5V I_D=0.05A		1.7	2.7	Ω
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS}=0V I_S=250mA			1.5	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=250uA	1.0	1.6	2.5	V
Forward Transconductance	Y_{fs}	V_{DS}=10V I_D=0.2A	80			mS
Input Capacitance	Ciss	VGS=0V, f=1MHz, VDS=20V		25	50	pF
Output Capacitance	Coss			11	25	
Reverse Transfer Capacitance	Crss			2.5	5	
Total Gate Charge	$Q_{G(TOT)}$	VGS=4.5V, VDS=10V; ID=200 mA		0.7		nC
Threshold Gate Charge	$Q_{G(TH)}$			0.1		
Gate−to−Source Charge	Q_{GS}			0.3		
Gate−to−Drain Charge	Q_{GD}			0.1		

Electrical Characteristics(Ta=25℃)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn−On Delay Time	$t_{d(ON)}$	VGS =10V, VDD=25V, ID=500mA, RG=25Ω		6.0		ns
Rise Time	t_r			5.8		
Turn−Off Delay Time	$t_{d(OFF)}$			13.2		
Fall Time	t_f			8.9		

Electrical Characteristic Curve

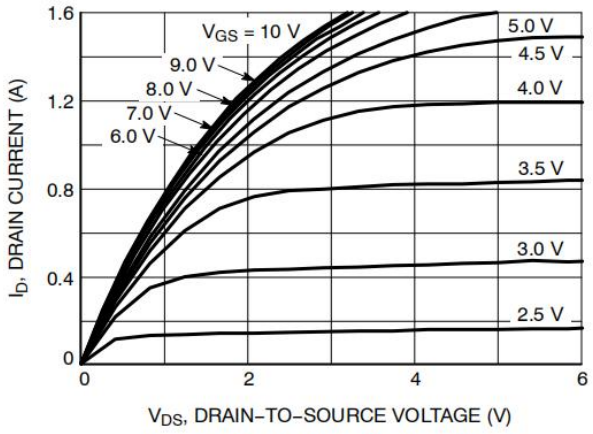


Figure 1. On-Region Characteristics

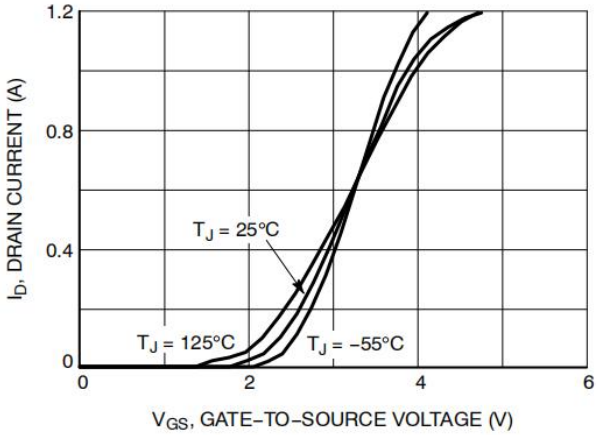


Figure 2. Transfer Characteristics

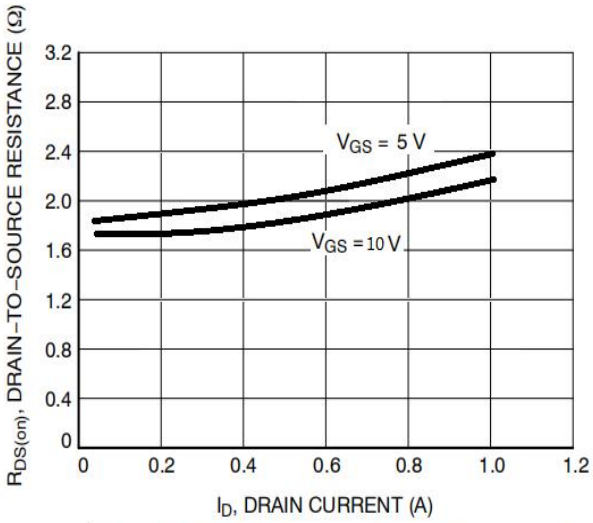


Figure 3. On-Resistance vs. Drain Current and Temperature

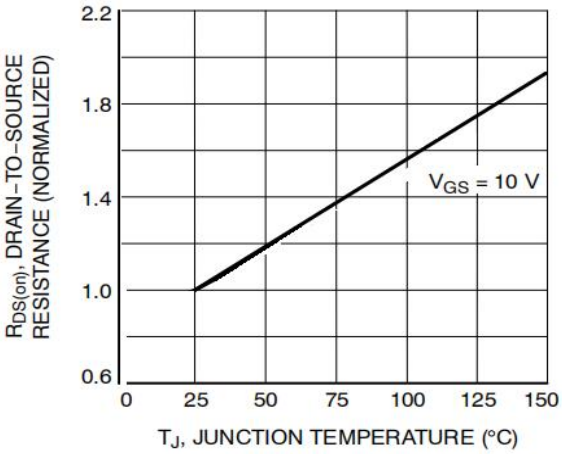


Figure 4 On-Resistance Variation with Temperature Temperature

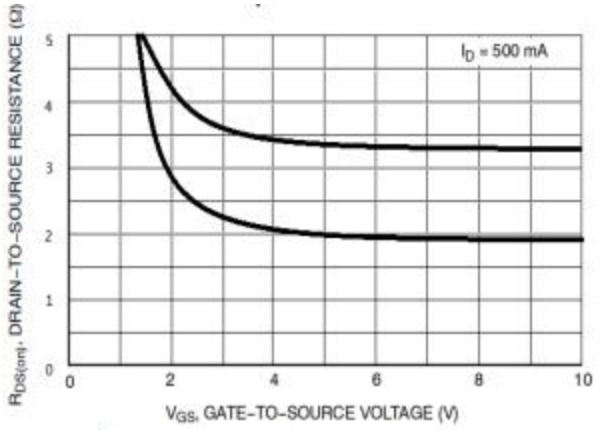


Figure 5. On-Resistance vs. Gate-to-Source Voltage

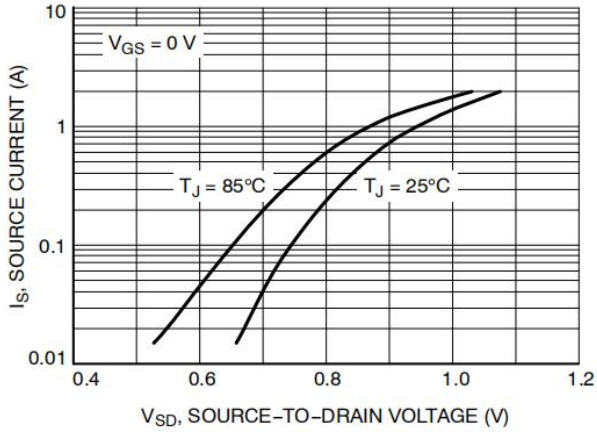


Figure 6 Diode Forward Voltage vs. Current

Electrical Characteristic Curve

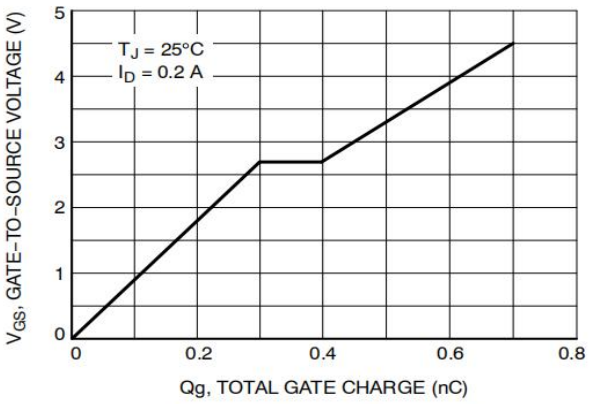


Figure 7 . Gate-to-Source and Drain-to-Source Voltage vs. Total Charge

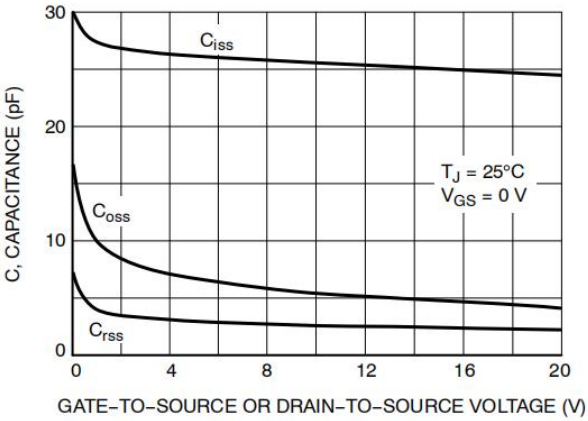


Figure 8. Capacitance Variation

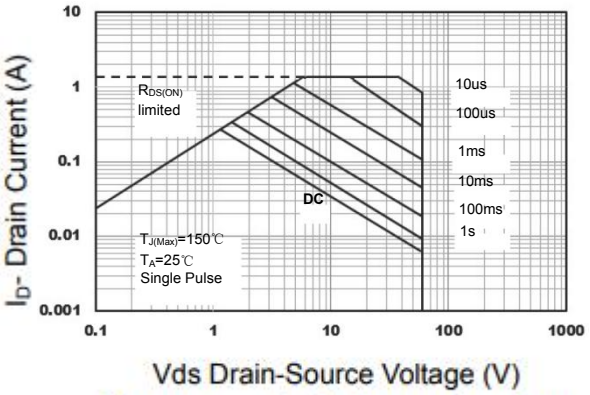


Figure 9 : Safe Operation Area

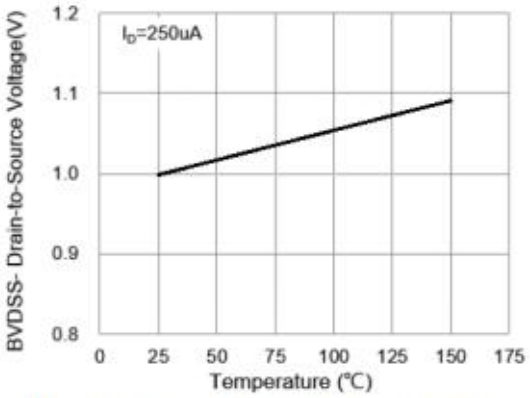


Figure 10 : Breakdown Voltage vs. Temperture

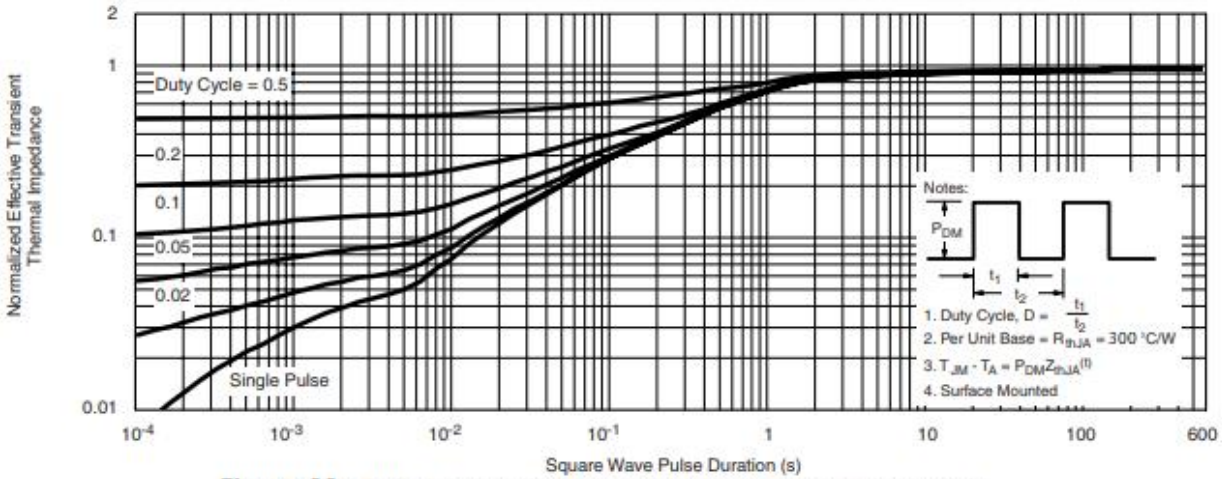
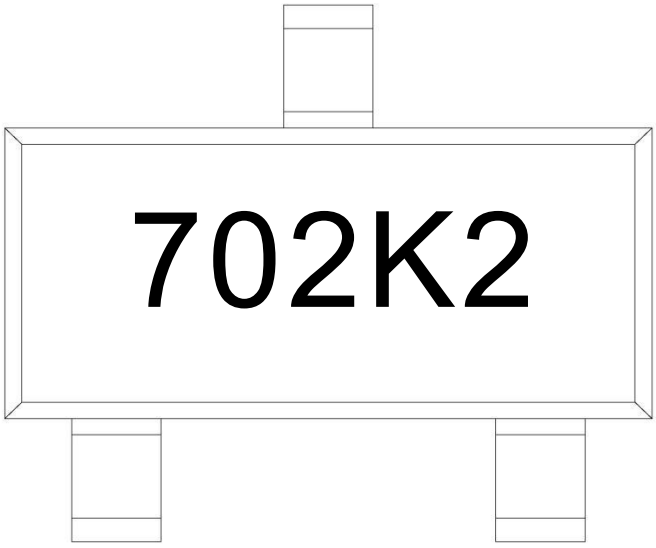


Figure 11 : Normalized Thermal Transient Impedance, Junction-to-Ambient

Marking Instructions



Note:

702K2: Product Type

Packaging SPEC.

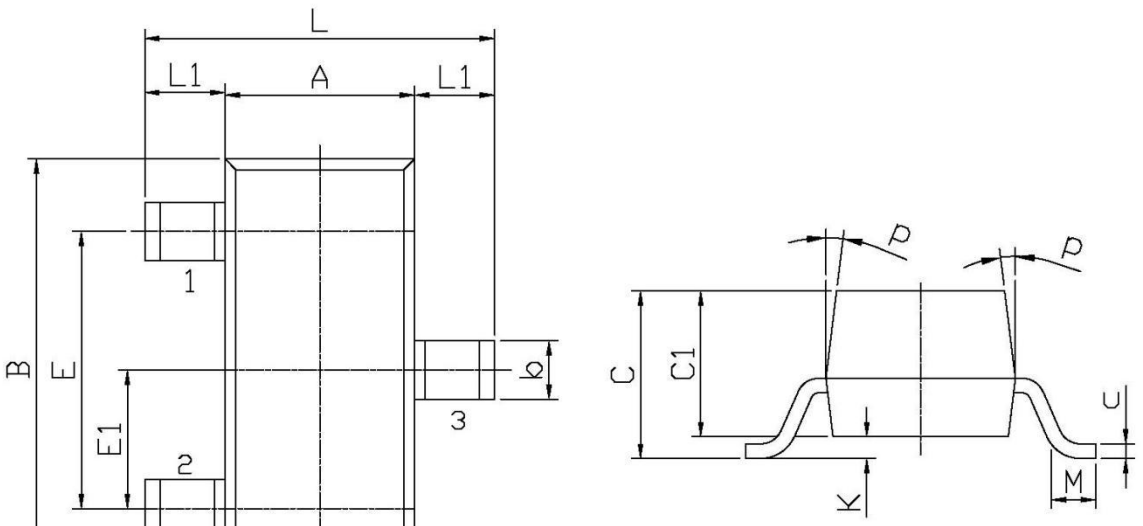
REEL INFORMATION

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	6	180,000	7″ ×8	180×120×180	390×385×205

Package Outline Dimensions

SOT-23

单位：mm



Symbol	Dimensions In Millmeters		Symbol	Dimensions In Millmeters	
	Min	Max		Min	Max
L	2.2	2.7	C	1.30Max	
L1	0.45	0.65	C1	0.90	1.20
A	1.15	1.50	c	0.05	0.20
B	2.70	3.10	K	0	0.10
E	1.70	2.10	M	0.20MIN	
E1	0.85	1.05	P	7°	
b	0.35	0.55			