

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
60V	5.0Ω@10V	0.34A
	5.3Ω@4.5V	

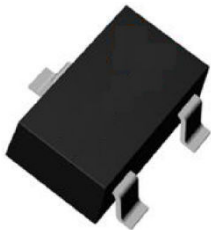
Feature

- ESD protection
- Advanced trench process technology
- High density cell design for ultra low on-resistance
- Very low leakage current in off condition
- In compliance with EU RoHS 2002/95/EC directives.

Application

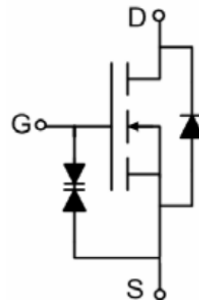
- Specially designed for battery operated system, solid-state relays drivers, relays, displays, lamps, solenoids, memories, etc.

Package

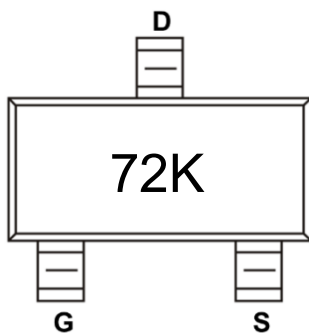


SOT-23

Circuit diagram



Marking



Absolute maximum ratings (Ta=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	60	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current	I _D	0.34	A
Pulsed Drain Current	I _{DM}	1.5	A
Power Dissipation	P _D	0.35	W
Thermal Resistance from Junction to Ambient	R _{θJA}	357	°C/W
Junction Temperature	T _J	150	°C
Storage Temperature	T _{STG}	-55 ~ +150	°C

Electrical characteristics (T_A=25 °C, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 10μA	60			V
Zero gate voltage drain current	I _{DSS}	V _{DS} = 48V, V _{GS} = 0V			1	μA
Gate-body leakage current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±10	μA
Gate threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1.0		2.5	V
Drain-source on-resistance ¹⁾	R _{DS(on)}	V _{GS} = 10V, I _D = 0.3A			5.0	Ω
		V _{GS} = 4.5V, I _D = 0.2A			5.3	
Dynamic characteristics²⁾						
Input Capacitance	C _{iss}	V _{DS} = 30V, V _{GS} = 0V, f = 1MHz		18		pF
Output Capacitance	C _{oss}			12		
Reverse Transfer Capacitance	C _{rss}			7		
Total Gate Charge	Q _g	V _{DS} = 30V, V _{GS} = 10V, I _D = 0.3A		1.7	2.4	nC
Turn-on delay time	t _{d(on)}	V _{DD} = 30V, V _{GS} = 10V, I _D = 0.3A R _{GEN} = 6Ω		5		nS
Turn-off delay time	t _{d(off)}			17		
Source-Drain Diode characteristics						
Diode Forward Current ¹⁾	I _S				0.34	A
Diode Forward voltage	V _{DS}	V _{GS} = 0V, I _S = 0.3A			1.2	V

Notes:

- 1) Pulse Test: Pulse Width < 300μs, Duty Cycle ≤2%.
- 2) Guaranteed by design, not subject to production testing.

Typical Characteristics

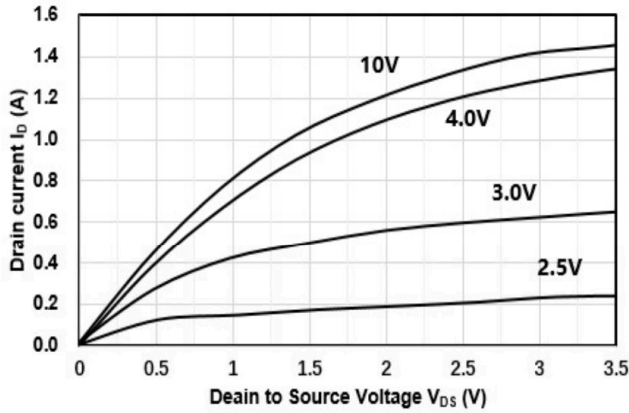


Figure1. Output Characteristics

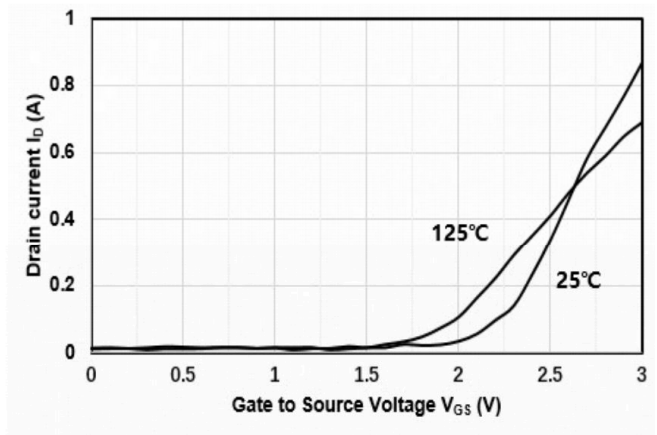


Figure2. Transfer Characteristics

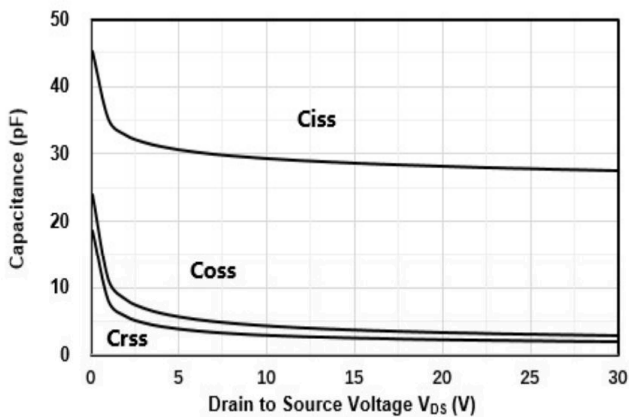


Figure3. Capacitance Characteristics

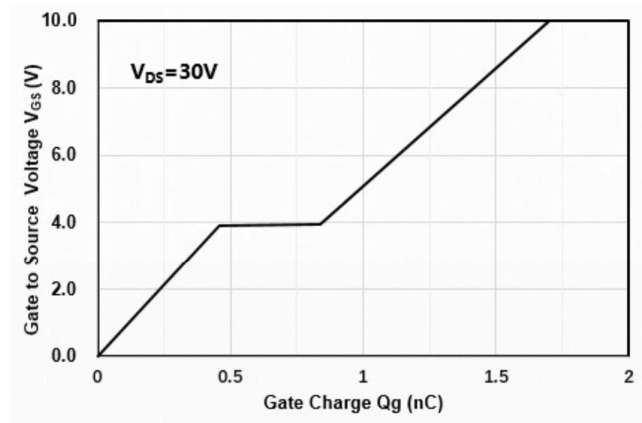


Figure4. Gate Charge

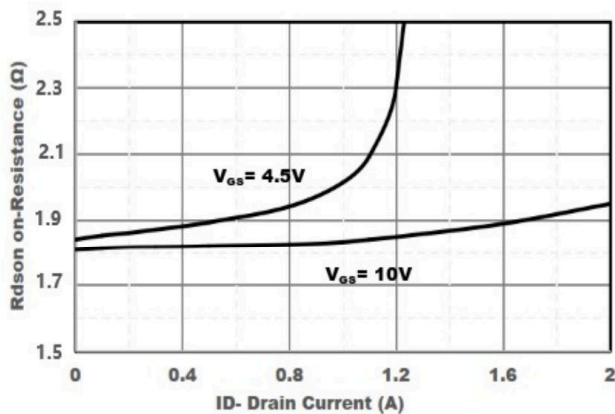


Figure5. Drain-Source on Resistance

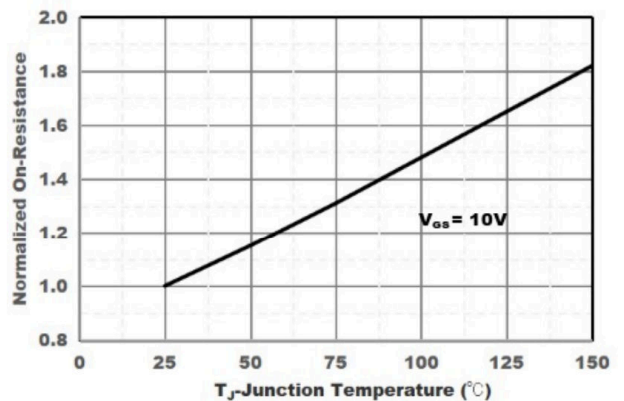


Figure6. Drain-Source on Resistance

Typical Characteristics

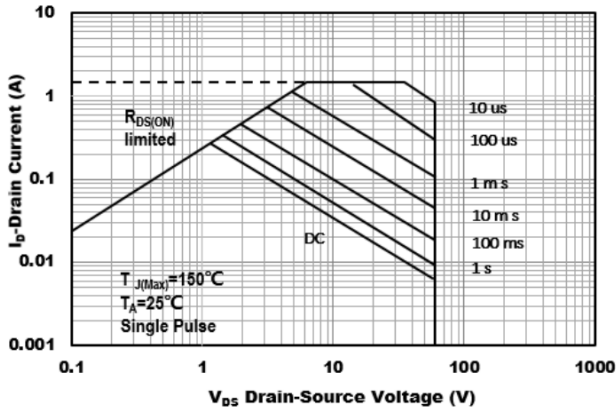


Figure7. Safe Operation Area

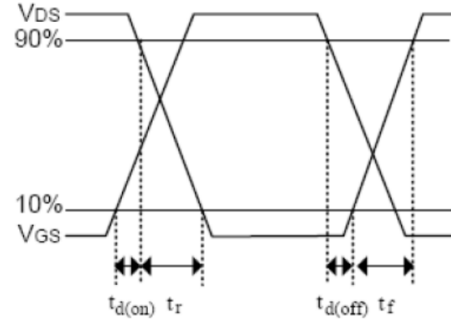
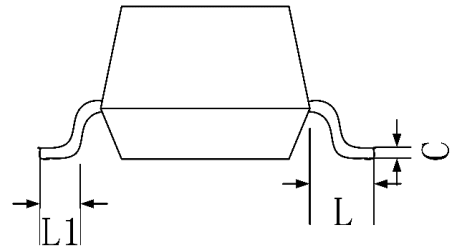
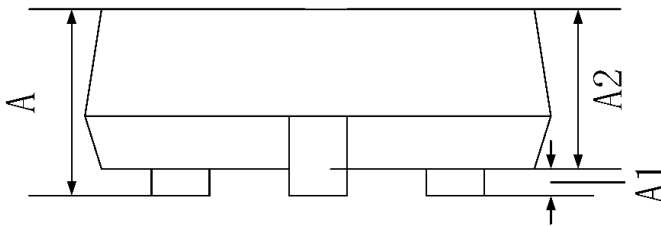
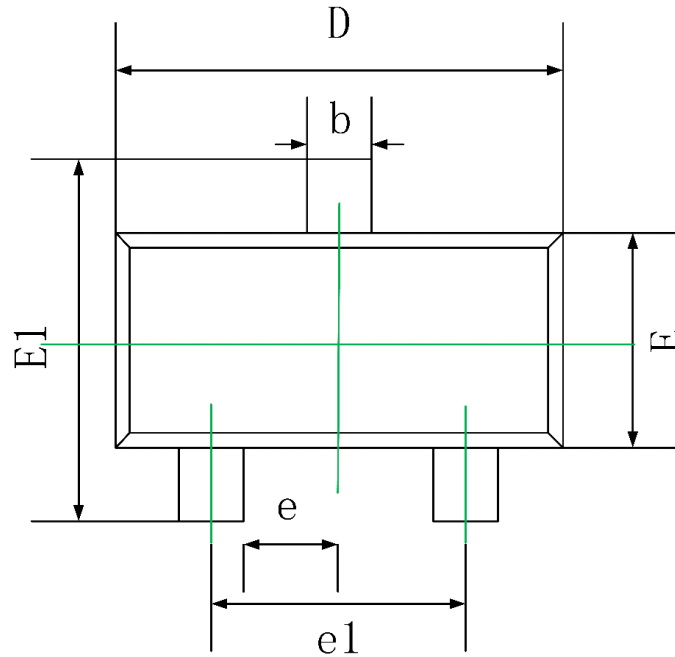


Figure8. Switching wave

SOT-23 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.200	0.003	0.008
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.100	2.640	0.082	0.105
e	0.950 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L	0.550 REF.		0.022 REF.	
L1	0.300	0.500	0.012	0.020