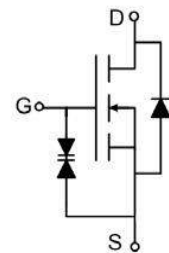


Features

- N-Channel
- Advanced Trench Technology
- Excellent $R_{DS(ON)}$ and Low Gate Charge
- Lead free product is acquired
- ESD Protected: 2KV

V_{DS}	60	V
$R_{DS(on),TYP@ V_{GS}=10V}$	1.7	Ω
$R_{DS(on),TYP@ V_{GS}=4.5V}$	2.0	Ω
I_D	0.2	A

SOT-523


Part ID	Package Type	Marking	Packing
ZT72FN06	SOT-523	72F	3000pcs/Reel

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

Symbol	Parameter	Rating	Unit	
Common Ratings ($T_c=25^\circ\text{C}$ Unless Otherwise Noted)				
V_{GS}	Gate-Source Voltage	± 20	V	
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	60	V	
T_J	Maximum Junction Temperature	150	$^\circ\text{C}$	
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ\text{C}$	
I_{DM}	Drain Current-Continuous@ Current-Pulsed (Note 1)	$T_c = 25^\circ\text{C}$ 1.2	A	
Mounted on Large Heat Sink				
I_D	Drain Current-Continuous	$T_c = 25^\circ\text{C}$	0.2	A
		$T_c = 100^\circ\text{C}$	0.19	A
P_D	Maximum Power Dissipation	0.35	W	
$R_{\theta JA}$	Thermal Resistance Junction-Ambient	357	$^\circ\text{C/W}$	

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

Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ T_J=25°C (unless otherwise stated)						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	60	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =60V, V _{GS} =0V	--	--	1	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±20V, V _{DS} =0V			±10	μA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	1.0	1.5	2.5	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =10V, I _D =0.3A	--	1.7	2.2	Ω
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =4.5V, I _D =0.2A	--	2.0	2.9	Ω
Dynamic Electrical Characteristics @ T_J = 25°C (unless otherwise stated)						
C _{iss}	Input Capacitance	V _{DS} =25V, V _{GS} =0V, f=1MHz	--	28	--	pF
C _{oss}	Output Capacitance		--	11	--	pF
C _{rss}	Reverse Transfer Capacitance		--	4	--	pF
Q _g	Total Gate Charge	V _{DS} =10V, I _D =0.3A, V _{GS} =4.5V	--	1.7	--	nC
Q _{gs}	Gate-Source Charge		--	0.3	--	nC
Q _{gd}	Gate-Drain Charge		--	0.6	--	nC
Switching Characteristics						
T _{d(on)}	Turn-on Delay Time	V _{DD} =10V, I _D =0.2A, R _G =10Ω, V _{GS} =10V	--	2	--	ns
T _r	Turn-on Rise Time		--	15	--	ns
T _{d(off)}	Turn-Off Delay Time		--	7	--	ns
T _f	Turn-Off Fall Time		--	20	--	ns
Source- Drain Diode Characteristics @ T_J = 25°C (unless otherwise stated)						
I _{SD}	Source-Drain Current (Body Diode)		--	--	0.2	A
V _{SD}	Forward on voltage	I _S =0.3A, V _{GS} =0V	--	--	1.2	V

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%

Typical Performance Characteristics

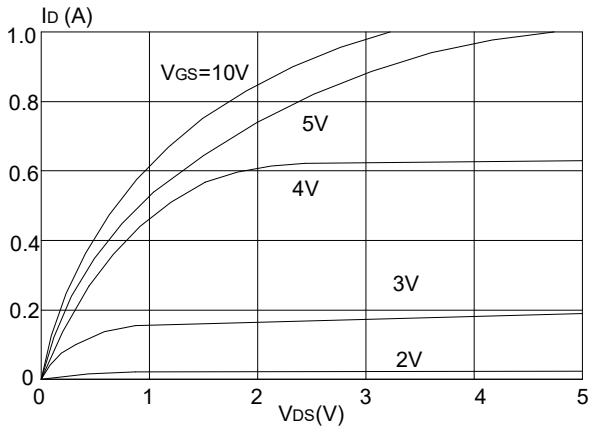


Figure 1: Output Characteristics

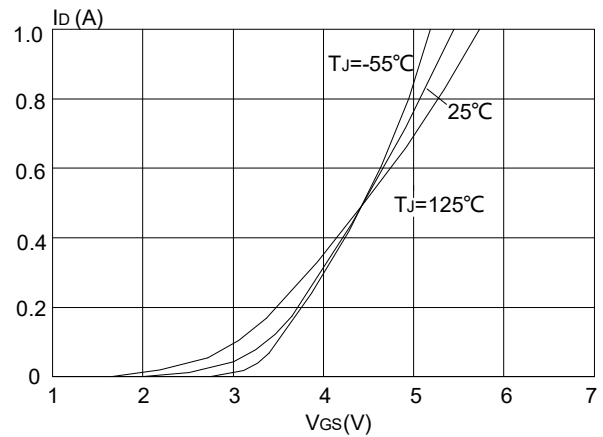


Figure 4: Typical Transfer Characteristics

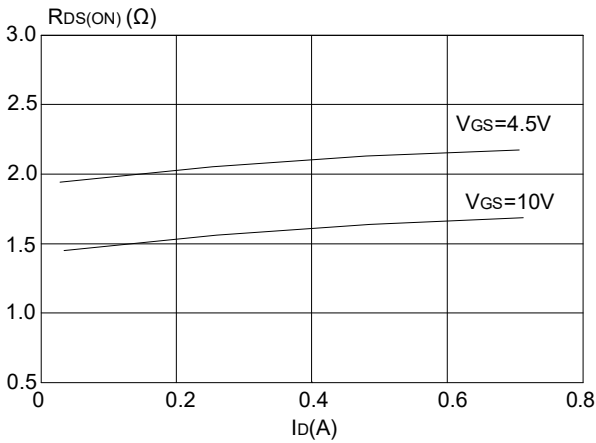


Figure 2: On-resistance vs. Drain Current

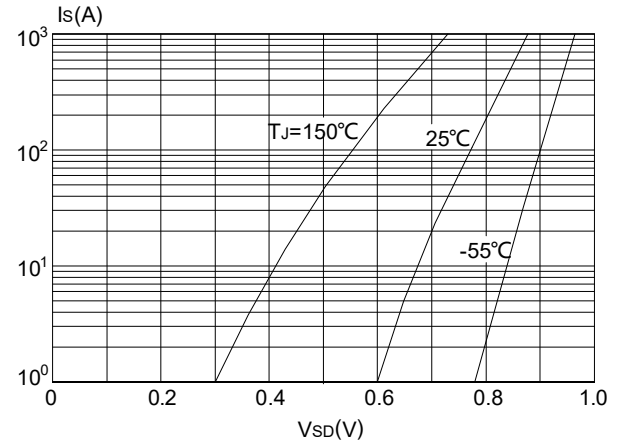


Figure 5: Body Diode Characteristics

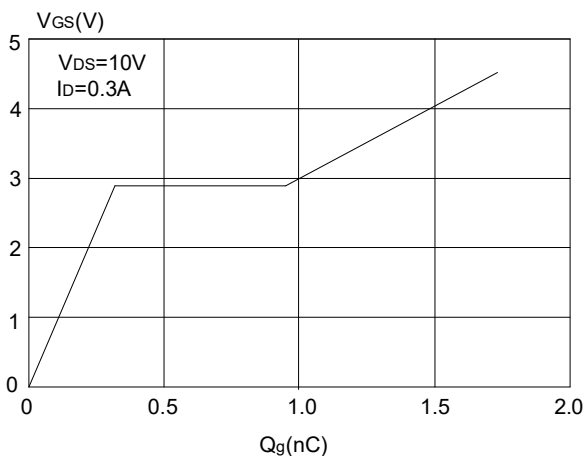


Figure 3: Gate Charge Characteristics

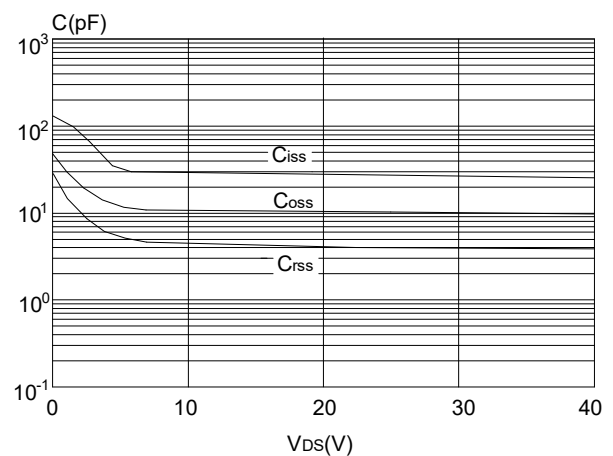


Figure 6: Capacitance Characteristics

Typical Performance Characteristics

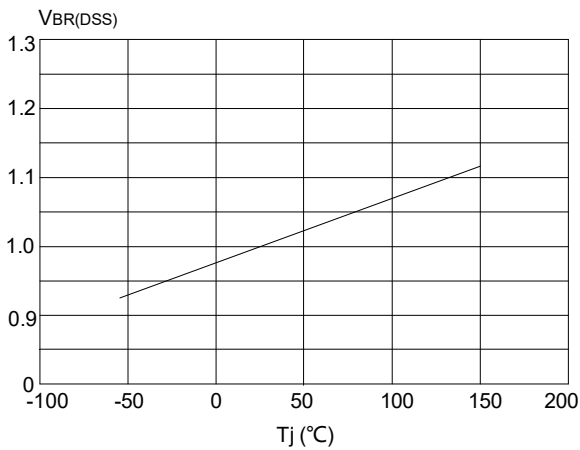


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

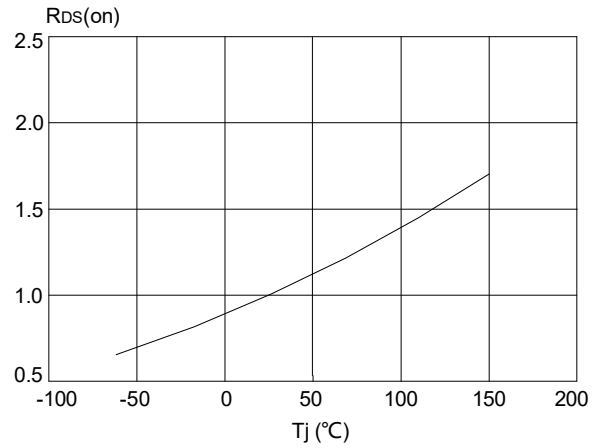


Figure 9: Normalized on Resistance vs. Junction Temperature

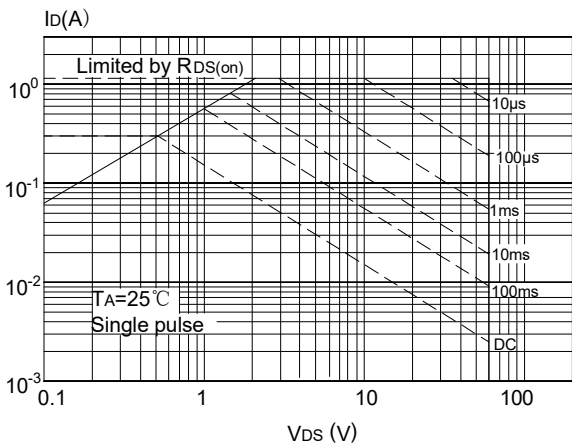


Figure 8: Maximum Safe Operating Area

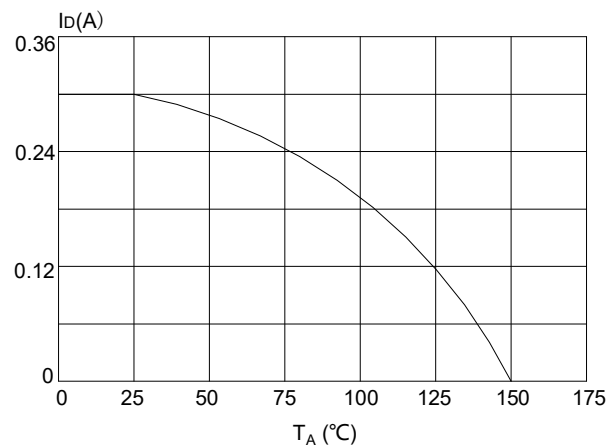


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

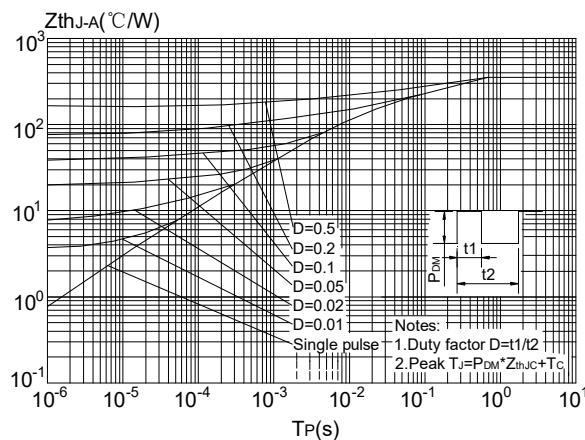


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

Test Circuit

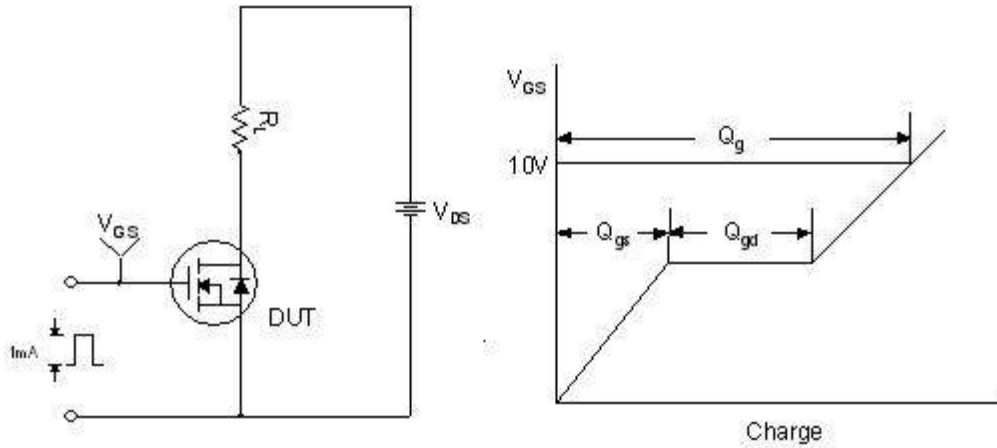


Figure 1. Gate Charge Test Circuit & Waveform

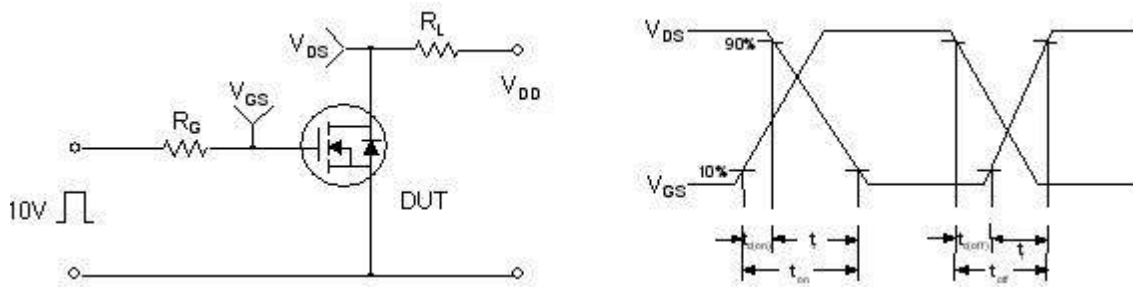


Figure 2. Resistive Switching Test Circuit & Waveforms

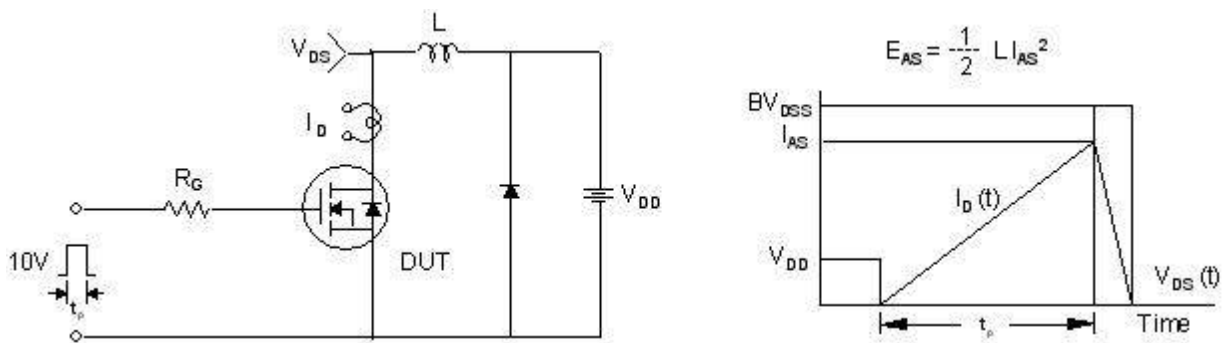
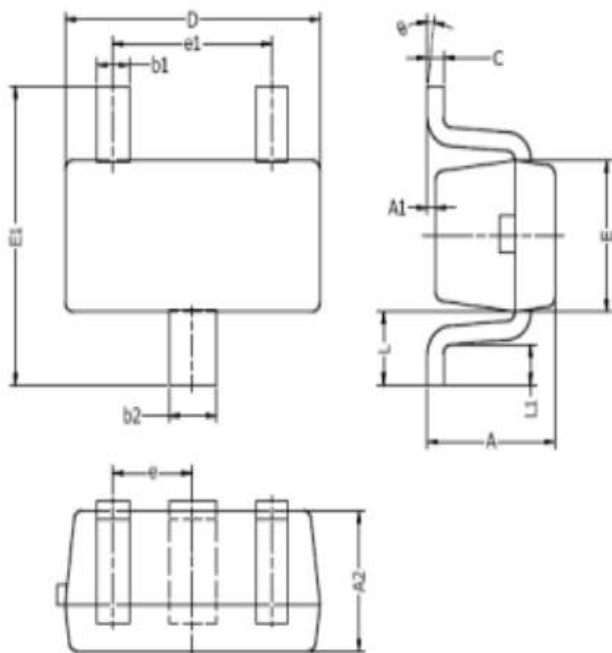
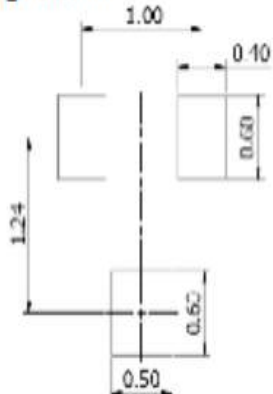


Figure 3. Unclamped Inductive Switching Test Circuit & Waveforms

SOT-523 Package Information



Typical Soldering Pattern:



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.70	0.90	0.028	0.035
A1	0.00	0.10	0.000	0.004
A2	0.70	0.80	0.028	0.031
b1	0.15	0.25	0.006	0.010
b2	0.25	0.35	0.010	0.014
c	0.10	0.20	0.004	0.008
D	1.50	1.70	0.059	0.067
E	0.70	0.90	0.028	0.035
E1	1.45	1.75	0.057	0.069
e	0.50 TYP.		0.020 TYP.	
e1	0.90	1.10	0.035	0.043
L	0.40 REF.		0.016 REF.	
L1	0.10	0.30	0.004	0.012
θ	0°	8°	0°	8°

Customer Service

Sales and Service:

zj@ztasemi.com