

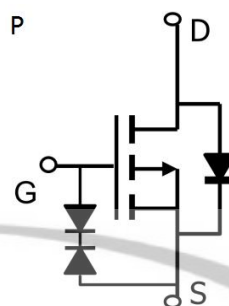
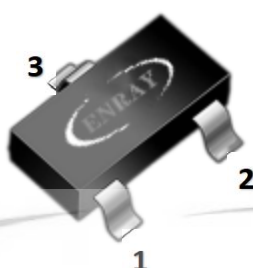
**ER3423****-20V P-Channel MOSFET****Features**

- Trench FET Power MOSFET
- High Speed Switching

Product Summary

V _{DS}	-20V
I _D	-2A
R _{DS(ON)} (at V _{GS} =-10V)	< 92mΩ
R _{DS(ON)} (at V _{GS} =-4.5V)	< 118mΩ
R _{DS(ON)} (at V _{GS} =-2.5V)	< 166mΩ

1.GATE
2.SOURCE
3.DRAIN

**Order Information**

Product	Package	Marking	Packing
ER3423	SOT-23	A39T	3000PCS/Reel

Maximum Ratings(Ta=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	-20	V
Gate-Source Voltage	V _{GS}	±12	
Continuous Drain Current	I _D	-2	A
Pulsed Drain Current ①	I _{DM}	-8	
Continuous Source-Drain Current(Diode Conduction)	I _S	-1	
Power Dissipation ②	P _D	1.4	W
Thermal Resistance from Junction to Ambient (t≤5s)	R _{θJA}	125	°C/W
Operating Junction	T _J	150	°C
Storage Temperature	T _{STG}	-55~+150	°C

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

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static Parameters ③						
Drain-Source Breakdown Voltage	BVDSS	VGS = 0V, ID = -250μA	-20			V
Gate Threshold Voltage	VGS(th)	VDS =VGS, ID = -250μA	-0.6		-1.4	V
Gate-Body leakage Current	IGSS	VDS =0V, VGS = ±12V			±10	μA
Zero Gate Voltage Drain Current	IDSS	VDS = -16V, VGS =0V			-1	μA
Static Drain-Source On-Resistance	RDS(on)	VGS = -10V, ID = -2A		76	92	mΩ
		VGS = -4.5V, ID = -2A		94	118	mΩ
		VGS = -2.5V, ID = -1A		128	166	mΩ
Forward Transconductance	gFs	VDS = -4.5V, ID = -2A		6.8		S
Diode Forward Voltage	VSD	IS=-1A,VGS=0V		-0.8	-1.3	V
Dynamic Parameters ④						
Input Capacitance	Ciss	VDS = -10V,VGS =0V, f=1MHz		512		pF
Output Capacitance	Coss			77		pF
Reverse Transfer Capacitance	Crss			62		pF
Total Gate Charge	Qg	VDS = -10V,VGS = -4.5V, ID = -2A		2.5		nC
Gate Source Charge	Qgs			0.8		nC
Gate Drain Charge	Qgd			2		nC
Gate Resistance	Rg	f=1MHz		6.5		Ω
Switching Parameters ④						
Turn-On DelayTime	td(on)	VDS= -10V RL=5Ω, ID = -1A, VGEN=- 10V,Rg=3Ω		5		ns
Turn-On Rise Time	tr			6.7		ns
Turn-Off DelayTime	td(off)			28		ns
Turn-Off Fall Time	tf			13.5		ns
Note :						
1. Repetitive Rating : Pulse width limited by maximum junction temperature.						
2. Surface Mounted on FR4 Board, t < 5 sec.						
3. Pulse Test : Pulse Width≤300μs, Duty Cycle ≤ 2%.						
4. Guaranteed by design, not subject to production testing.						

Typical Electrical and Thermal Characteristics

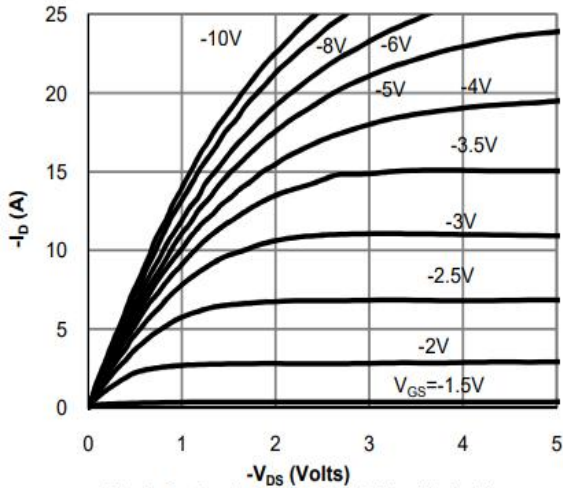


Fig 1: On-Region Characteristics (Note E)

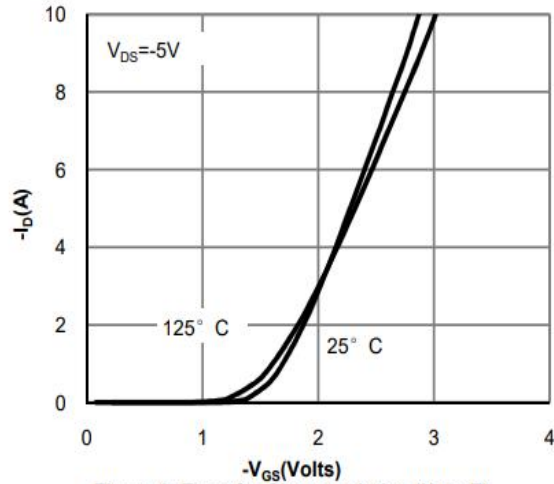


Figure 2: Transfer Characteristics (Note E)

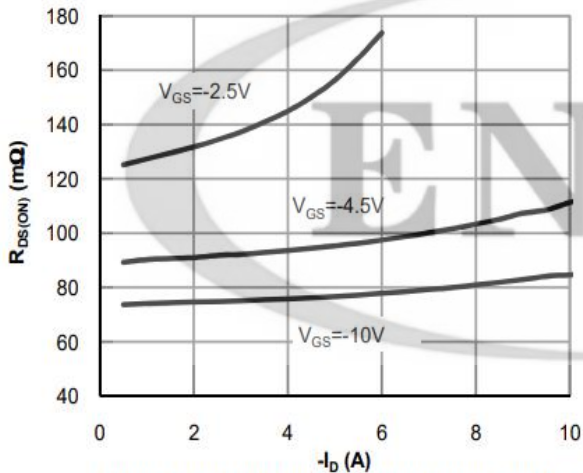


Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

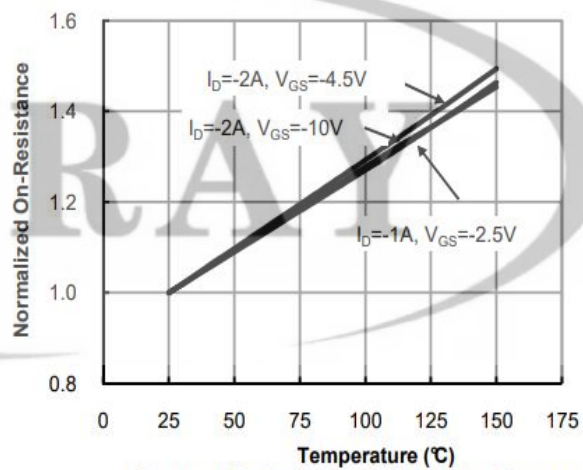


Figure 4: On-Resistance vs. Junction Temperature (Note E)

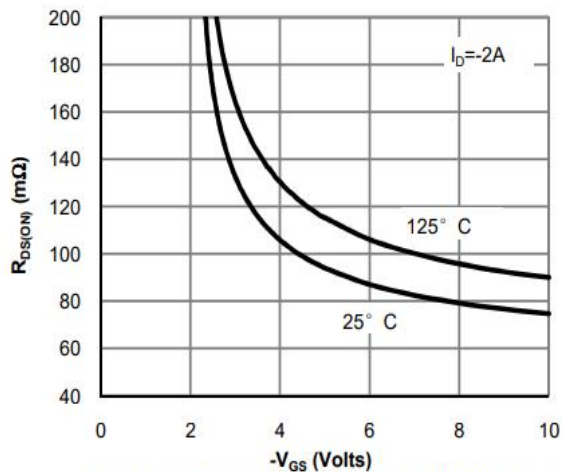


Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

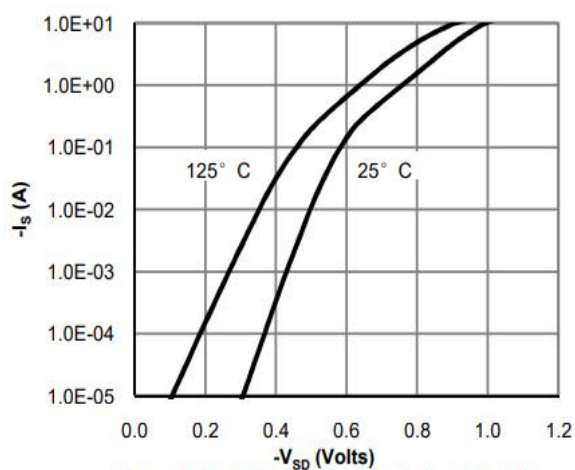
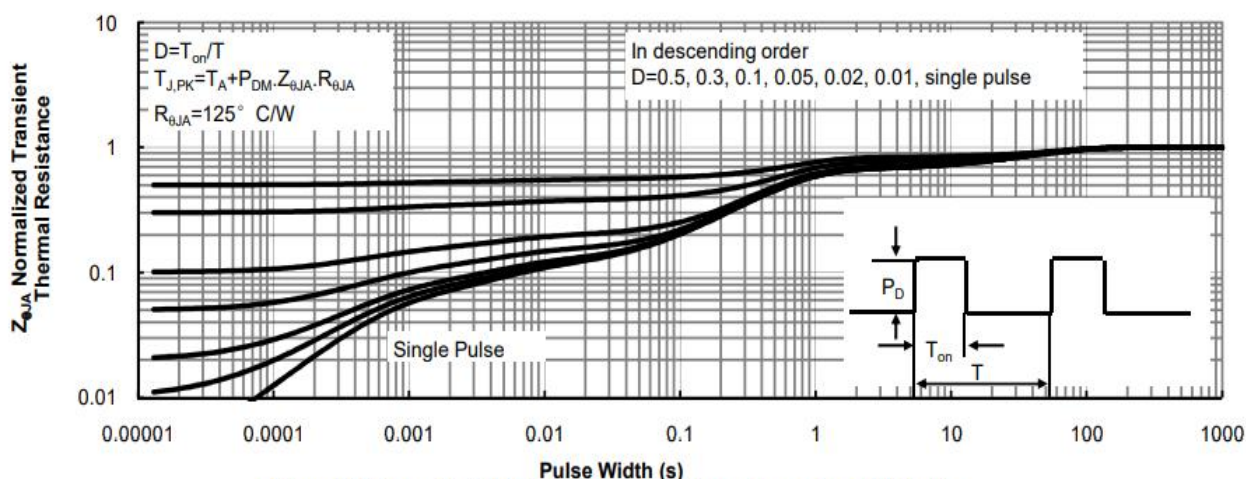
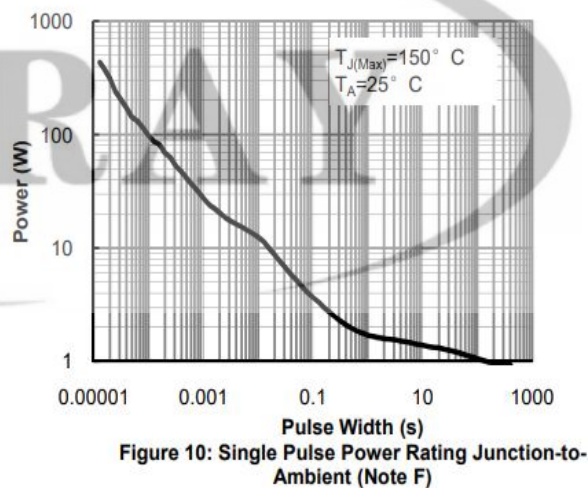
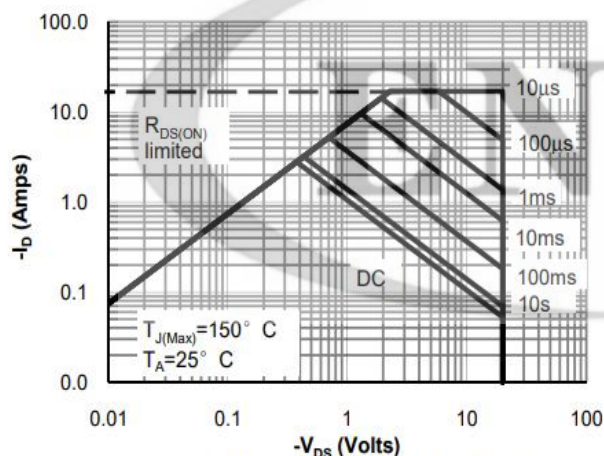
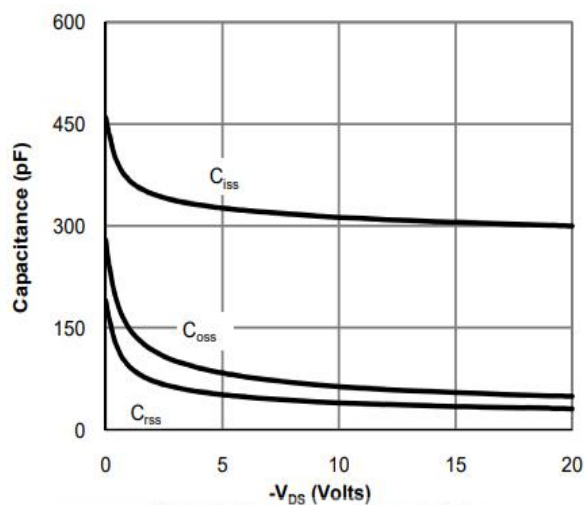
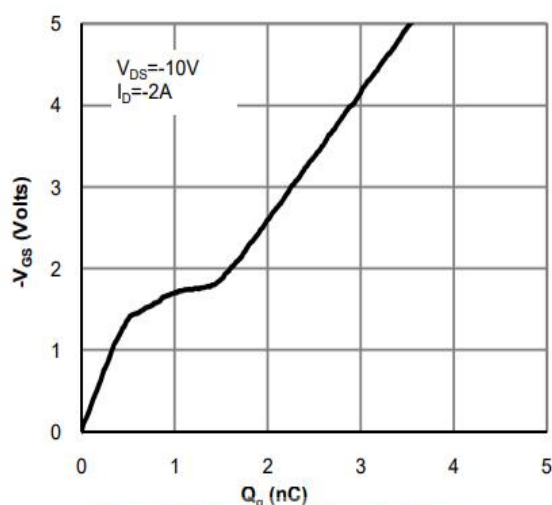


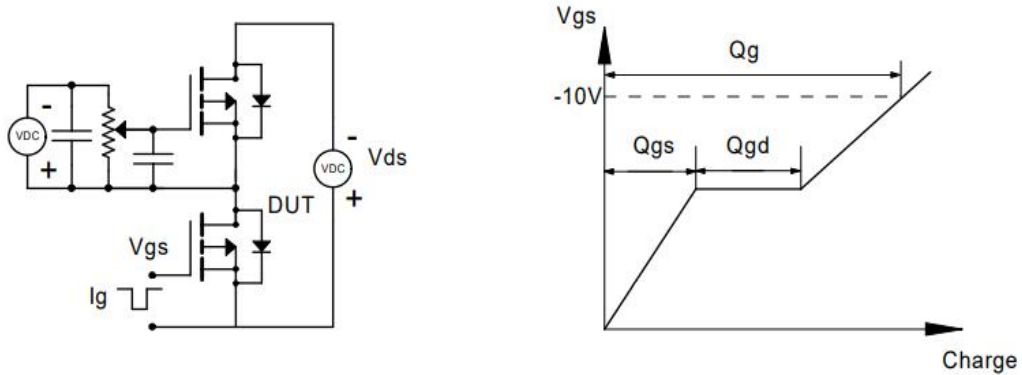
Figure 6: Body-Diode Characteristics (Note E)

Typical Electrical and Thermal Characteristics

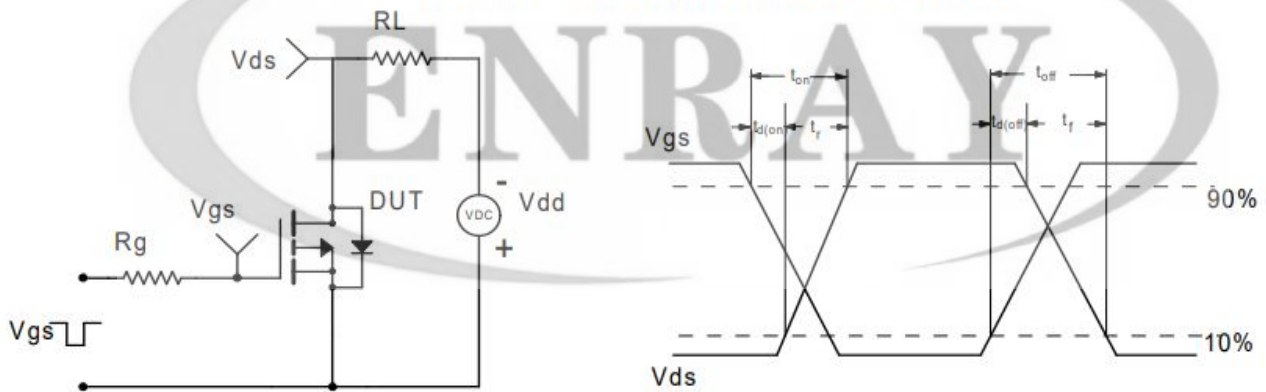


Typical Electrical and Thermal Characteristics

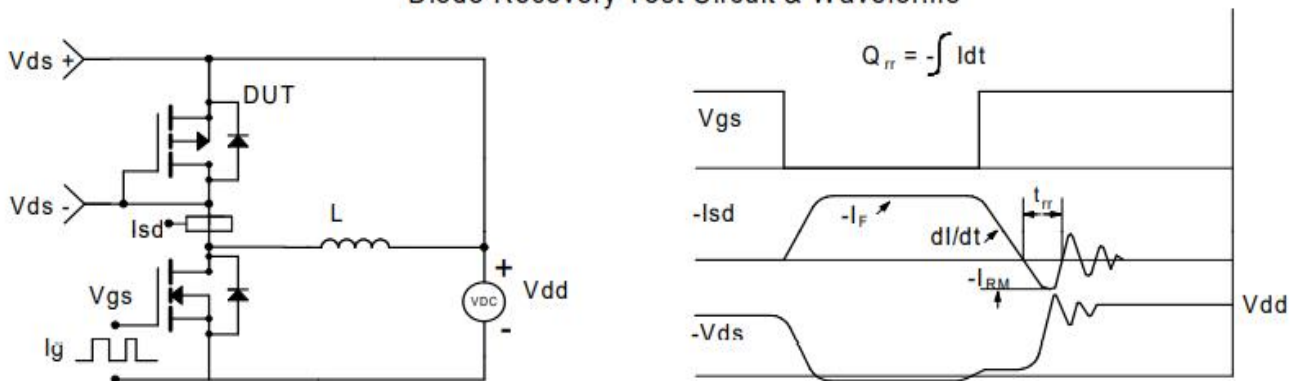
Gate Charge Test Circuit & Waveform

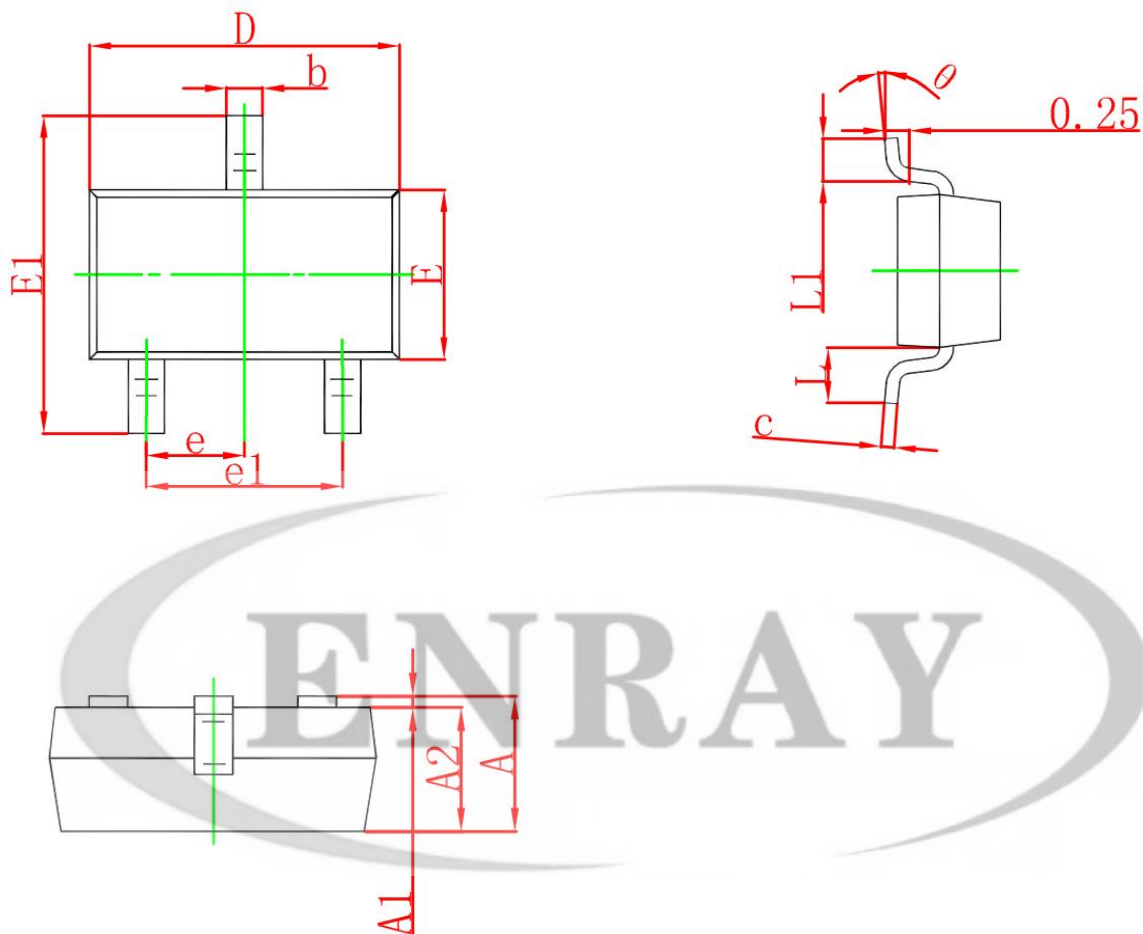


Resistive Switching Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms



SOT-23 Package Outline Dimesions


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	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
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
θ	0°	8°	0°	8°