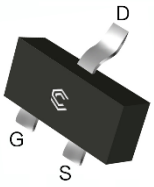
350V P-Channel MOSFET

FEATURES

- Fast switching
- 100% avalanche tested
- Improved dv/dt capability
- Enhanced ESD protection：1kV HBM



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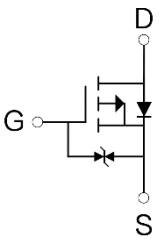


APPLICATIONS

- Switch Mode Power Supply (SMPS)
- Uninterruptible Power Supply (UPS)
- Power Factor Correction (PFC)

Device Marking and Package Information		
Device	**Package**	**Marking**
CSET03P35FZ	SOT23-3	35P13XX

Absolute Maximum Ratings T_C = 25℃, unless otherwise noted			
Parameter	**Symbol**	**Value**	**Unit**
Drain-Source Voltage (V_{GS} = 0V)	V_{DSS}	-350	V
Continuous Drain Current	I_D	-0.3	A
Pulsed Drain Current (note1)	I_{DM}	-1.2	A
Gate-Source Voltage	V_{GSS}	± 10	V
Single Pulse Avalanche Energy (note2)	E_{AS}	3.53	mJ
Avalanche Current (note1)	I_{AS}	0.84	A
Repetitive Avalanche Energy (note1)	E_{AR}	0.014	mJ
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55~+150	℃

Specifications T_J = 25℃, unless otherwise noted						
Parameter	Symbol	Test Conditions	Value			Unit
			Min.	Typ.	Max.	
Static						
Drain−Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = −250μA	−350	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =−350V, V_{GS} = 0V, T_J = 25℃	--	--	−1	μ A
Gate−Source Leakage	I_{GSS}	V_{GS} = ± 10V	--	--	± 1	μ A
Gate−Source Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = −250μA	−2.0	--	−1.2	V
Drain−SourceOn−Resistance(Note3)	$R_{DS(on)}$	V_{GS} = −5V, I_D = −0.15A	--	19	22	Ω
		V_{GS} = −4.5V, I_D = −0.15A	--	19	22	Ω
Dynamic						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = −25V, f = 1.0MHz	--	75	--	pF
Output Capacitance	C_{oss}		--	10	--	
Reverse Transfer Capacitance	C_{rss}		--	2.5	--	
Total Gate Charge	Q_g	V_{DD} = −100V, I_D = −0.3A, V_{GS} = −10V	--	1.25	--	nC
Gate−Source Charge	Q_{gs}		--	0.15	--	
Gate−Drain Charge	Q_{gd}		--	1.1	--	
Turn−on Delay Time	$t_{d(on)}$	V_{DD} = −100V, I_D =−0.3A, R_G = 3Ω	--	10	--	ns
Turn−on Rise Time	t_r		--	11	--	
Turn−off Delay Time	$t_{d(off)}$		--	10	--	
Turn−off Fall Time	t_f		--	40	--	
Continuous Body Diode Current	I_S	T_C = 25 ℃	--	--	−0.3	A
Pulsed Diode Forward Current	I_{SM}		--	--	−1.2	
Body Diode Voltage	V_{SD}	T_J = 25℃, I_{SD} = −0.15A, V_{GS} = 0V	--	--	−1.4	V
Reverse Recovery Time	t_{rr}	V_{DD} = −100V, I_D = −0.3A, di_F/dt =100A / μ s	--	60	--	ns
Reverse Recovery Charge	Q_{rr}		--	0.07	--	μ C

Notes

1. Repetitive Rating: Pulse width limited by maximum junction temperature
2. L = 10mH, V_{DD} =100V, R_G = 25 Ω, Starting T_J = 25 ℃
3. Pulse Test: Pulse width ≤ 300 μ s, Duty Cycle ≤ 1%

Typical Characteristics T_J = 25℃, unless otherwise noted

Figure 1. Output Characteristics (T_J = 25℃)

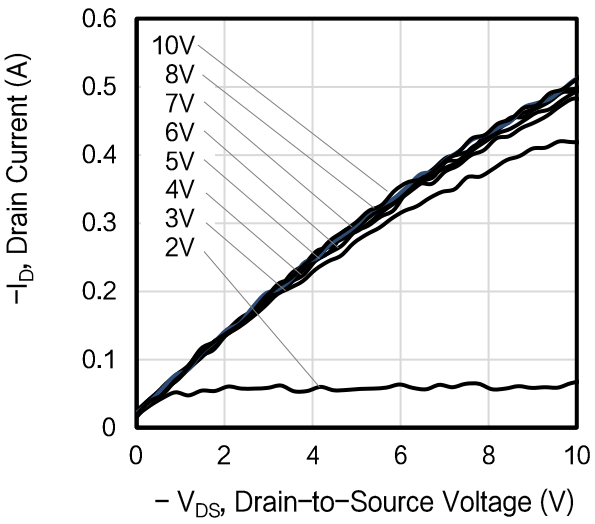


Figure 2. Body Diode Forward Voltage

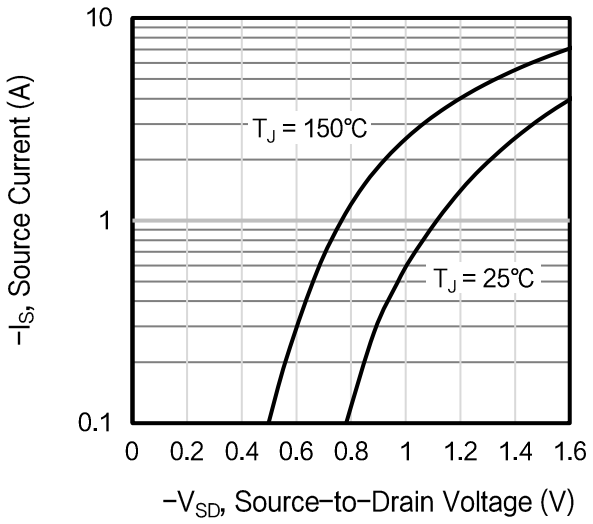


Figure 3. Drain Current vs. Temperature

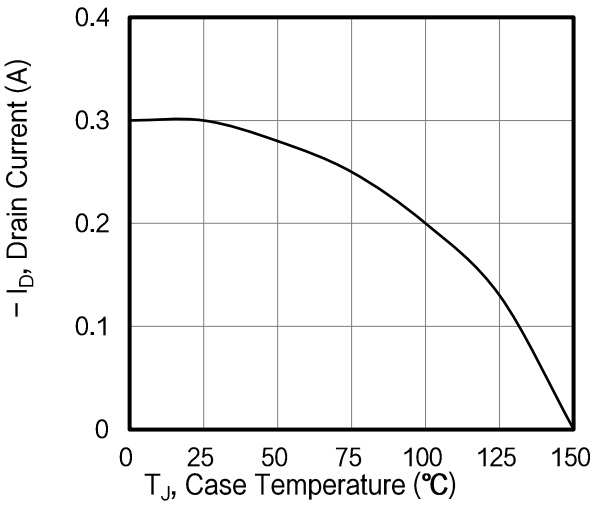


Figure 4. BV_{DSS} Variation vs. Temperature

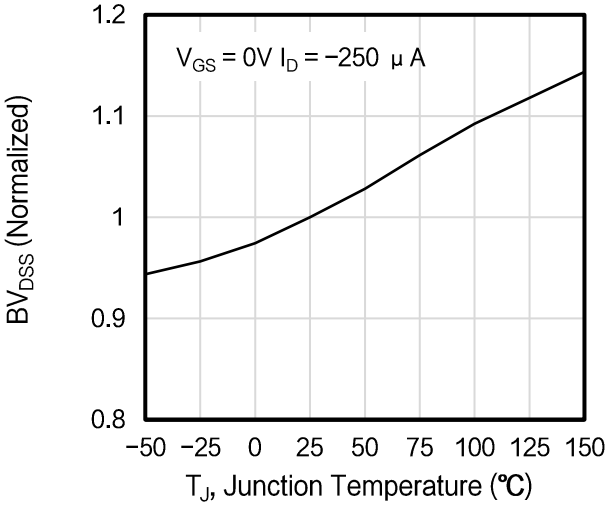


Figure 5. Transfer Characteristics

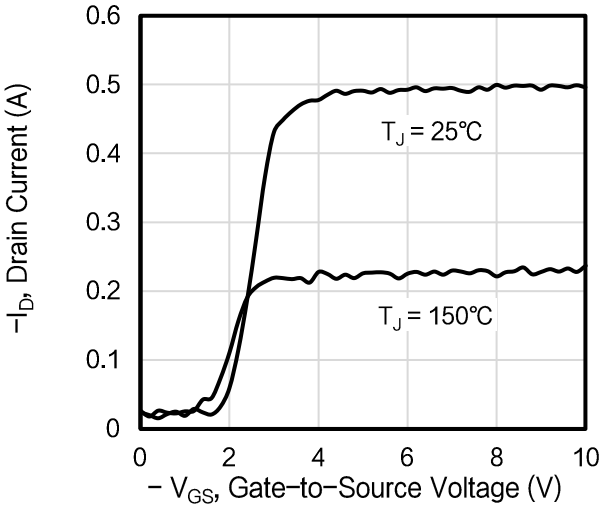
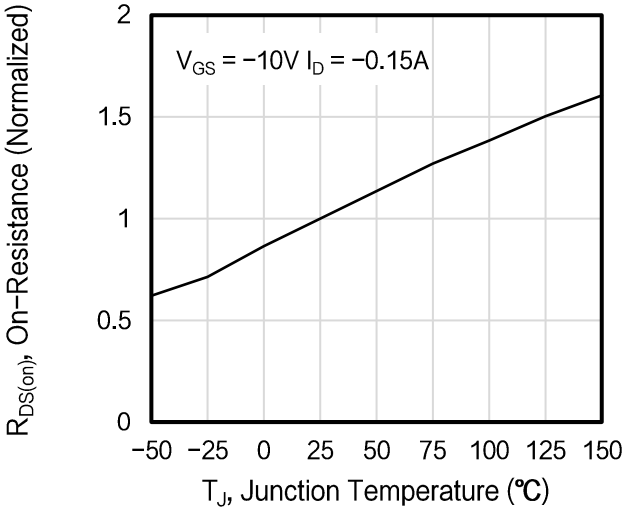


Figure 6. On-Resistance vs. Temperature



Typical Characteristics T_J = 25℃, unless otherwise noted

Figure 7. Capacitance

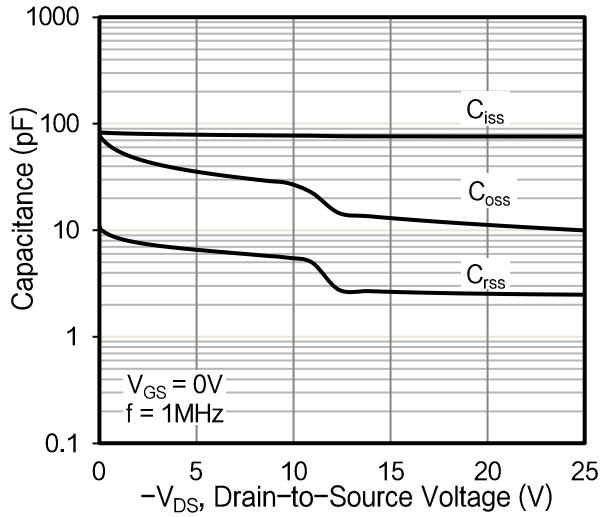


Figure 8. Gate Charge

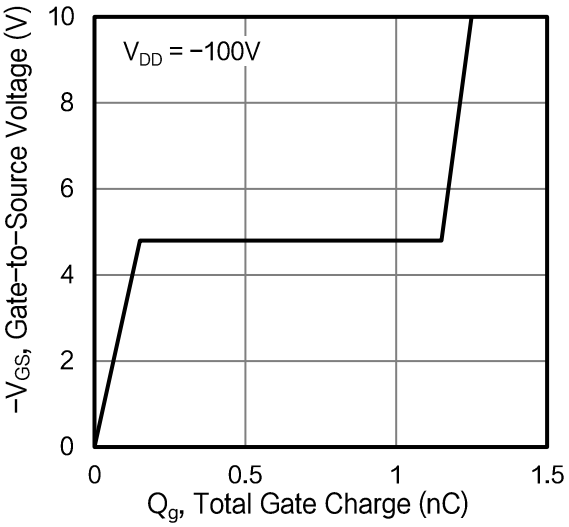
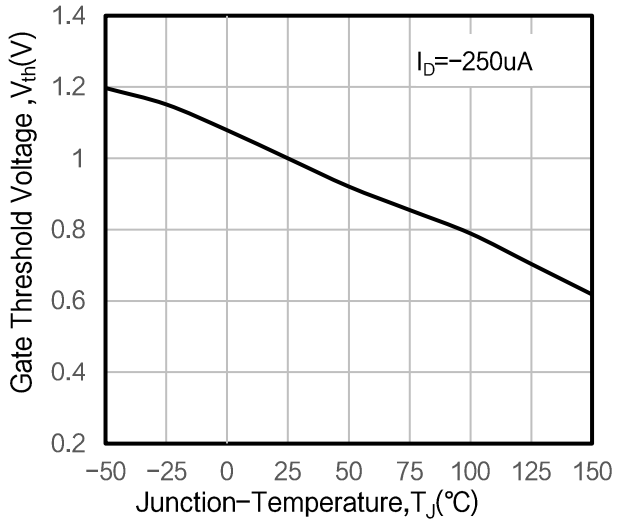


Fig.9 Threshold Voltage vs. Temperature



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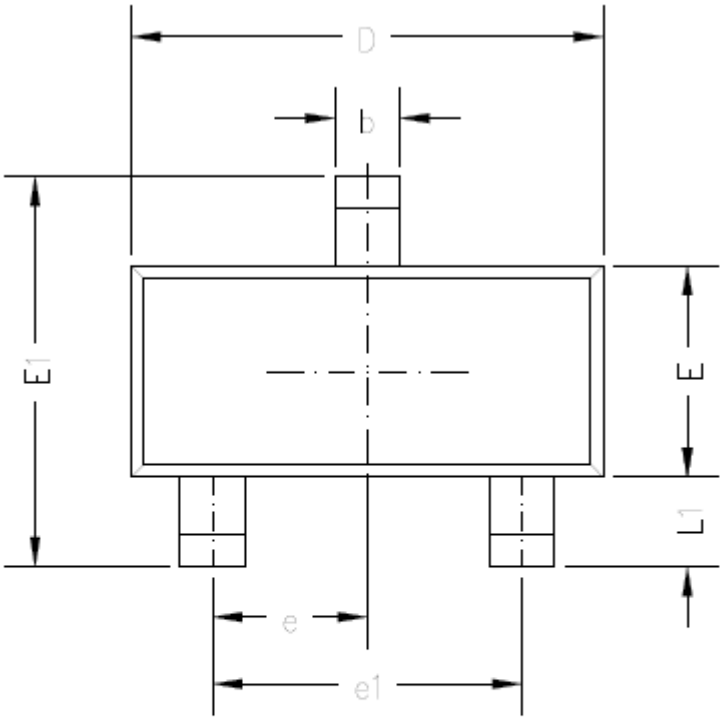

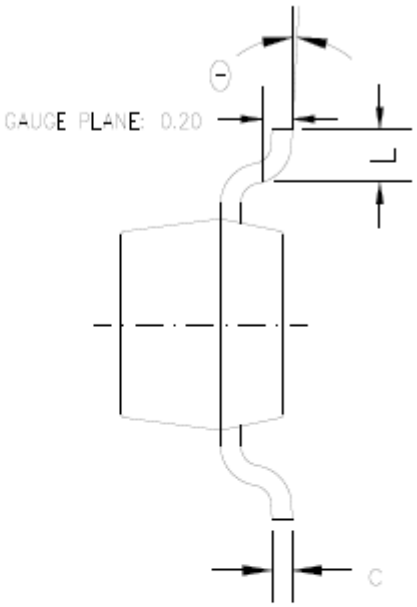

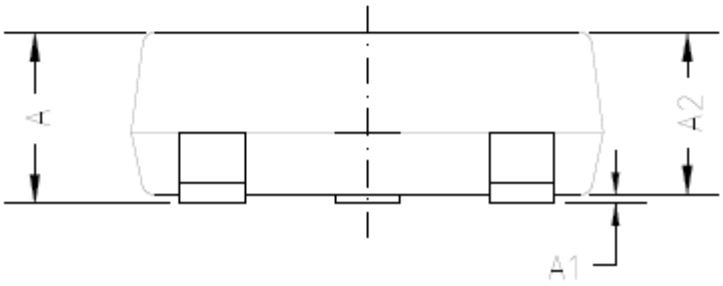

SYMBOLS	MILLIMETERS	
	MIN	MAX
A	0.90	1.20
A1	0.00	0.10
A2	0.90	1.10
b	0.30	0.50
c	0.10	0.15
D	2.80	3.00
e	0.95BSC	
e1	1.80	2.00
E	1.20	1.40
E1	2.30	2.50
L	0.30	0.50
L1	0.55REF	
θ	0	10

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