

General Description

The 2810 uses advanced trench technology and design to provide excellent RDS(ON). This device is ideal for boost converters and synchronous rectifiers for consumer, telecom, industrial power supplies and LED backlighting.

Features

- N-channel-Enhancement mode
- Lower On-resistance
- 100% Avalanche Tested
- RoHS Compliant

Absolute Maximum Ratings

Symbol	Parameter	Value	Units
V_{DS}	Drain-Source Voltage	80	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_C=25^\circ C$	Continuous Drain Current	45	A
$I_D@T_C=100^\circ C$	Continuous Drain Current	35	A
I_{DM}	Pulsed Drain Current	180	A
EAS	Single Pulse Avalanche Energy ¹	264	mJ
$P_D@T_C=25^\circ C$	Total Power Dissipation	100	W
T_{STG}	Storage Temperature Range	-55 to 175	$^\circ C$
T_J	Operating Junction Temperature Range	-55 to 175	$^\circ C$

Thermal Data

Symbol	Parameter	Value	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	50	$^\circ C/W$
$R_{\theta JC}$	Thermal Resistance Junction-case	1.5	$^\circ C/W$

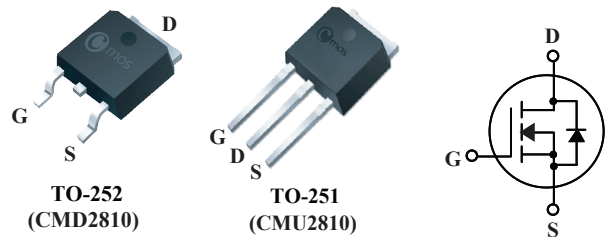
Product Summary

BVDSS	RDSON	ID
80V	8.5m Ω	45A

Applications

- DC-DC converters
- Power switching application
- Ideal for high-frequency switching and synchronous rectification

TO-252/251 Pin Configuration



N-Channel Enhancement Mode Field Effect Transistor

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V , I _D =250μA	80	---	---	V
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =10V , I _D =20A	---	6.2	8.5	mΩ
		V _{GS} =6V , I _D =20A	---	10	13.5	
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250uA	2	---	3.5	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =80V , V _{GS} =0V , T _J =25°C	---	---	1	uA
		V _{DS} =80V , V _{GS} =0V , T _J =55°C	---	---	5	
I _{GSS}	Gate-Source Leakage Current	V _{GS} =±20V , V _{DS} =0V	---	---	±100	nA
g _{fs}	Forward Transconductance	V _{DS} =5V , I _D =20A	---	25	---	S
R _g	Gate Resistance	V _{DS} =0V , V _{GS} =0V , f=1MHz	---	1	---	Ω
Q _g	Total Gate Charge	I _D =20A V _{DS} =40V V _{GS} =10V	---	27	---	nC
Q _{gs}	Gate-Source Charge		---	8.5	---	
Q _{gd}	Gate-Drain Charge		---	5	---	
T _{d(on)}	Turn-On Delay Time	V _{DS} =40V R _{GEN} =3Ω V _{GS} =10V R _L =2Ω	---	12	---	ns
T _r	Rise Time		---	8.5	---	
T _{d(off)}	Turn-Off Delay Time		---	22	---	
T _f	Fall Time		---	5.5	---	
C _{iss}	Input Capacitance	V _{DS} =25V , V _{GS} =0V , f=1MHz	---	1500	---	pF
C _{oss}	Output Capacitance		---	600	---	
C _{rss}	Reverse Transfer Capacitance		---	60	---	

Diode Characteristics

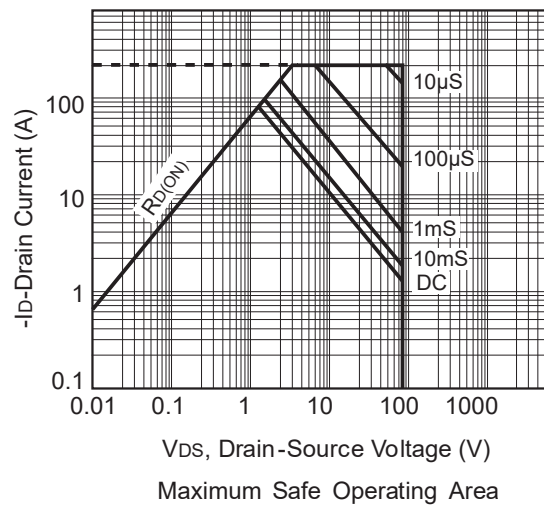
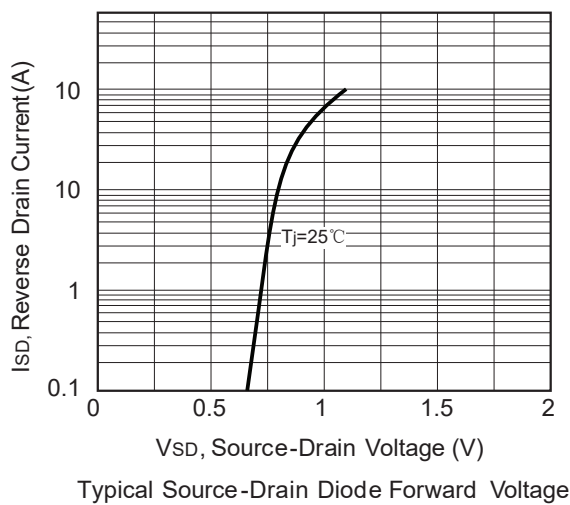
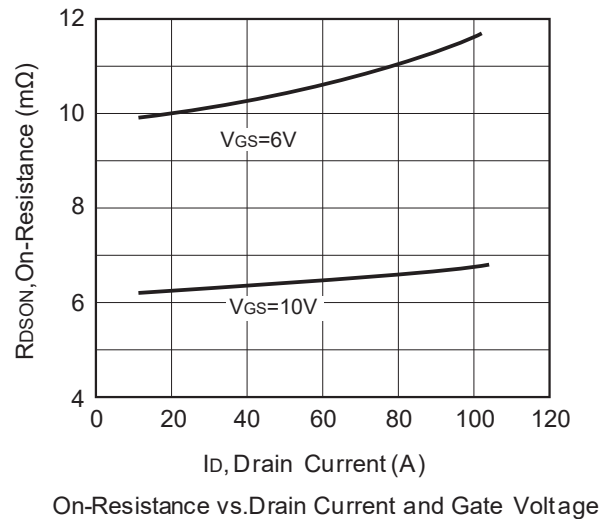
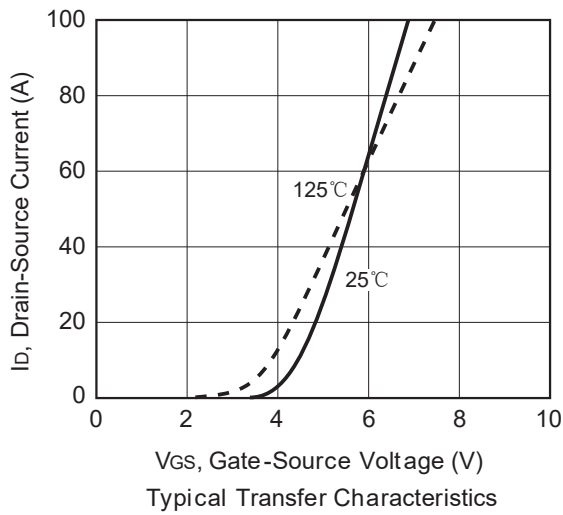
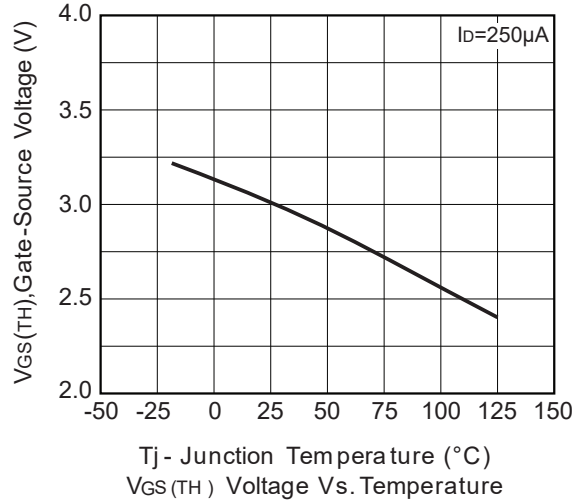
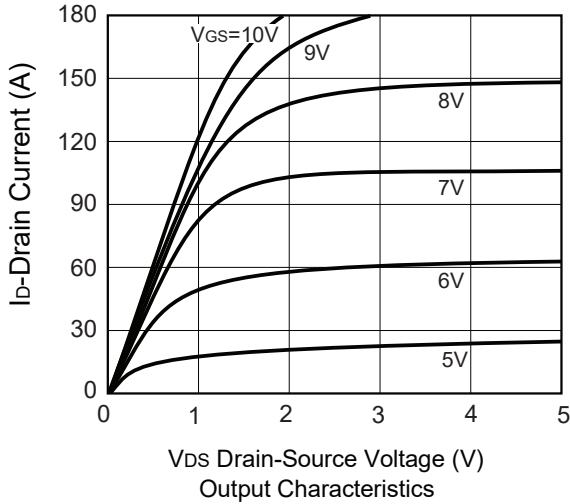
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current	V _G =V _D =0V , Force Current	---	---	45	A
I _{SM}	Pulsed Source Current		---	---	180	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V , I _S =20A , T _J =25°C	---	---	1.2	V

Note :

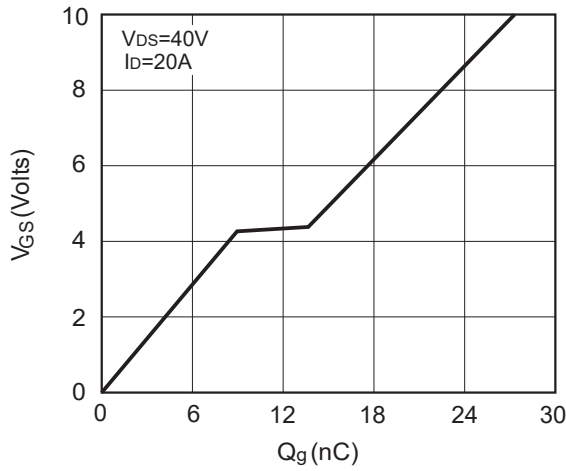
1.The EAS data shows Max. rating . The test condition is V_{DD}=40V,V_{GS}=10V,L=1mH,I_{AS}=23A.

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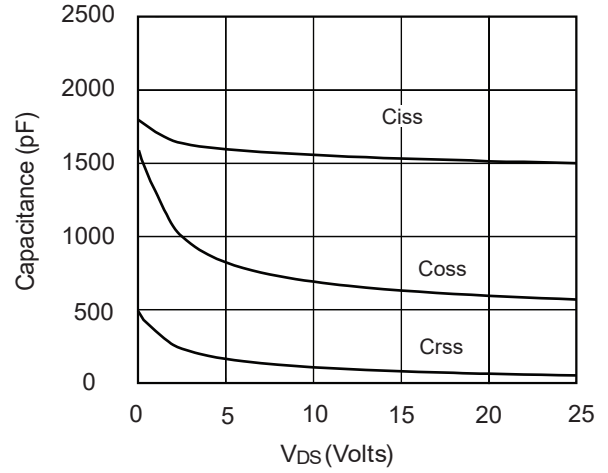
Typical Characteristics



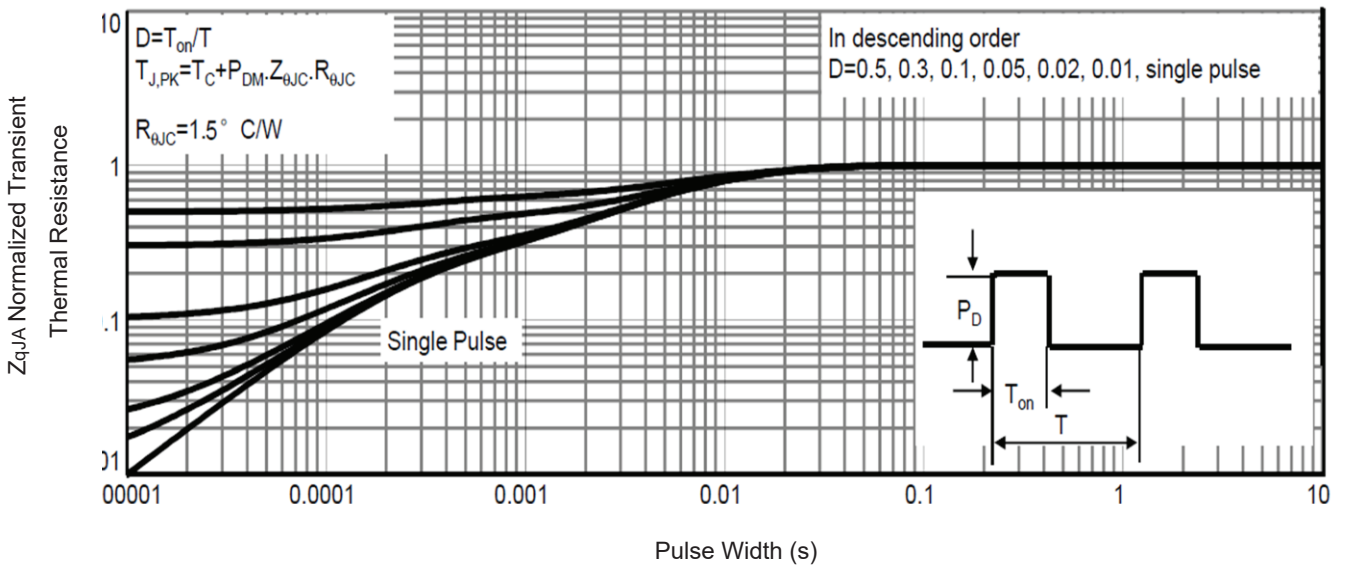
Typical Characteristics



Gate-Charge Waveforms



Capacitance Characteristics



Normalized Maximum Transient Thermal Impedance