

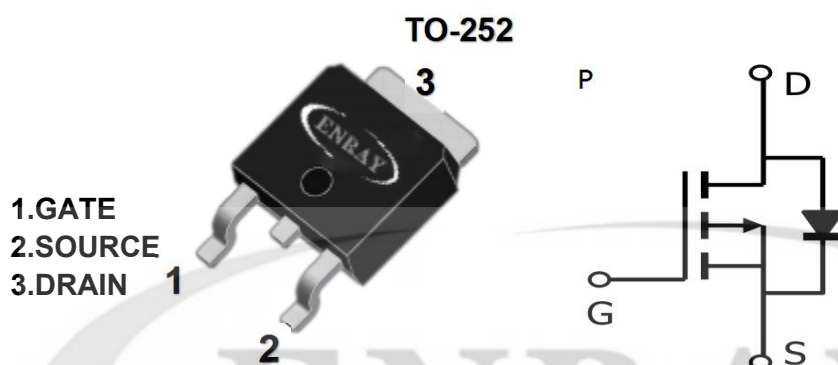
**ER100P03D****-30V P-Channel MOSFET****Features**

The DS100P03D is the high cell density trench P-ch MOSFETs, which provide excellent RDSON and gate charge for most of the synchronous buck converter applications

The DS100P03D meet the RoHS and GreeProduct requirement 100% EAS guaranteed with full function reliability approved.

Product Summary

BVDSS	RDSON	ID
-30V	3.5mΩ	-100A

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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	VDS	-30	V
Gate-Source Voltage	VGS	±20	
Continuous Drain Current, VGS@ -4.5V ¹	ID@TC=25°C	-100	A
Continuous Drain Current, VGS @ -4.5V	ID@TC =100°C	-67	
Pulsed Drain Current ²	IDM	-360	
Single Pulse Avalanche Energy	EAS	125	mJ
Total Power Dissipation	PD@TA=25°C	60	W
Storage Temperature Range	TSTG	-55 to 150	°C
Operating Junction Temperature Range	TJ	-55 to 150	

Thermal Data

Parameter	Symbol	Max.	Unit
Thermal Resistance Junction-ambient	RθJA	50	°C/W
Thermal Resistance Junction-Case	RθJC	1.58	

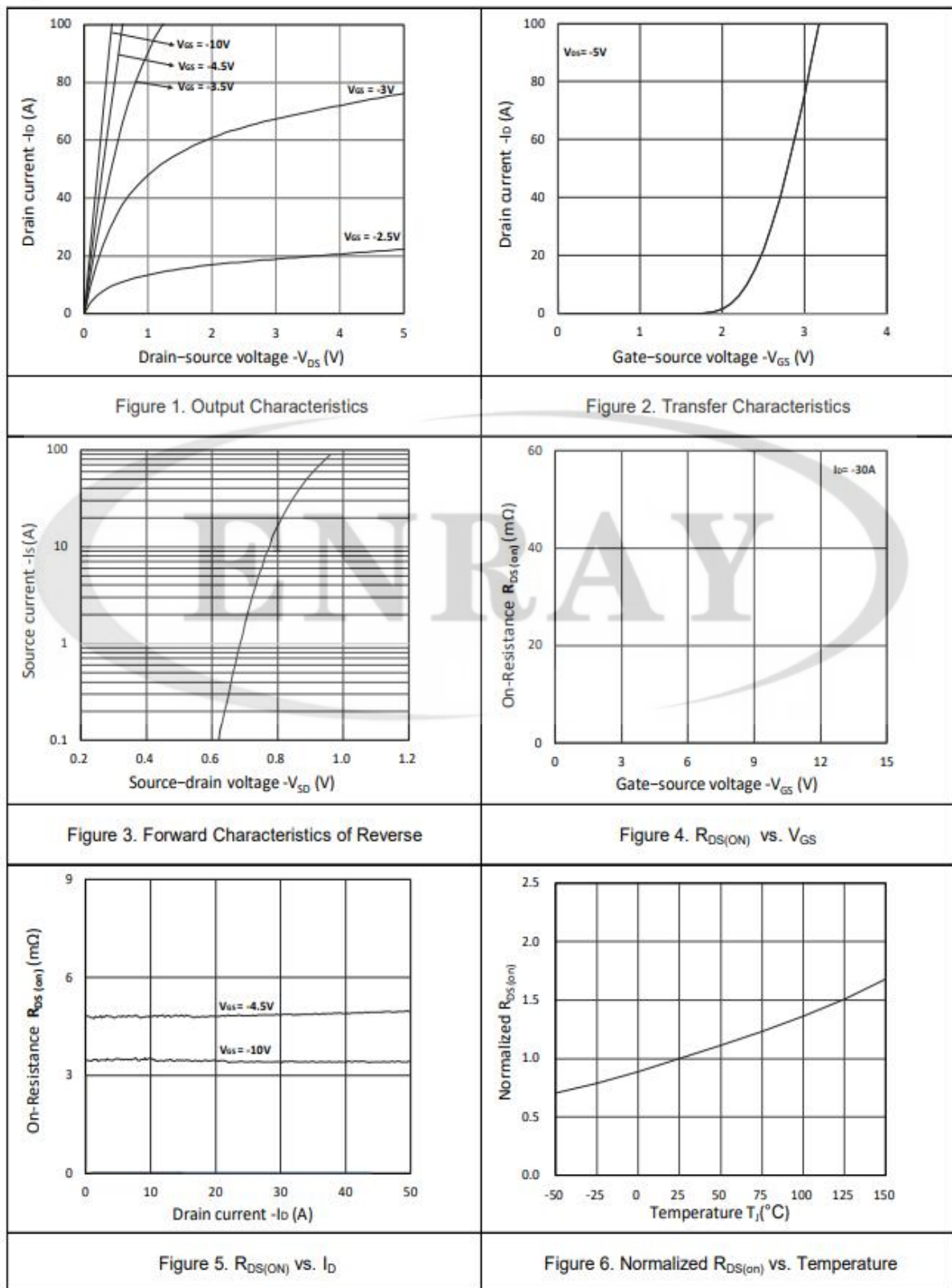
Electrical Characteristics(TJ=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static Parameters ③						
Drain-Source Breakdown Voltage	BVDSS	VGS = 0V, ID = -250μA	-30			V
Gate Threshold Voltage	VGS(th)	VDS =VGS, ID = -250μA	-1.0	-1.5	-2.5	V
Gate-Body leakage Current	IGSS	VDS =0V, VGS = ±20V			±100	nA
Zero Gate Voltage Drain Current	IDSS	VDS=-30V , VGS=0V , TJ=25℃			-1	μA
Static Drain-Source On-Resistance	RDS(on)	VGS = -10V, ID = -30A		3.5	4.5	mΩ
		VGS = -4.5V, ID = -15A		4.8	6.2	mΩ
Dynamic Parameters ④						
Input Capacitance	Ciss	VDS = -15V, VGS =0V, f =1MHz		5070		pF
Output Capacitance	Coss			695		pF
Reverse Transfer Capacitance	Crss			580		pF
Total Gate Charge	Qg	VGS = -10V,VDS = -15V, ID= -30A		146		nC
Gate Source Charge	Qgs			21.5		nC
Gate Drain Charge	Qgd			39		nC
Switching Parameters ④						
Turn-On DelayTime	td(on)	VGS = -10V, VDD = -15V, RG = 3Ω, ID= -30A		23		ns
Turn-On Rise Time	tr			15		ns
Turn-Off DelayTime	td(off)			129		ns
Turn-Off Fall Time	tf			28		ns
Drain-Source Diode Characteristics and Maximum Ratings						
Continuous Source Current ^{1,4}	IS	VG=VD=0V , Force Current			-20	A
Diode Forward Voltage ²	VSD	VGS=0V , IS=-1A , TJ=25℃			-1.2	V

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



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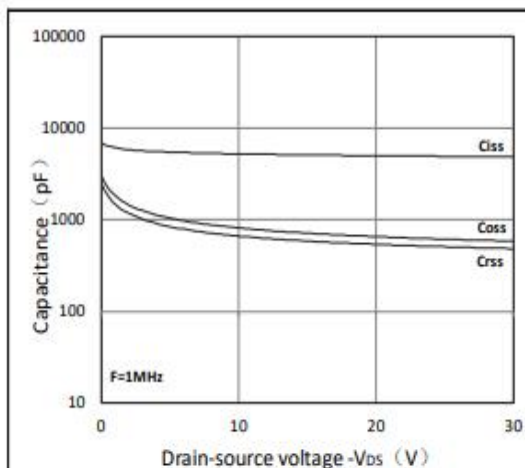


Figure 7. Capacitance Characteristics

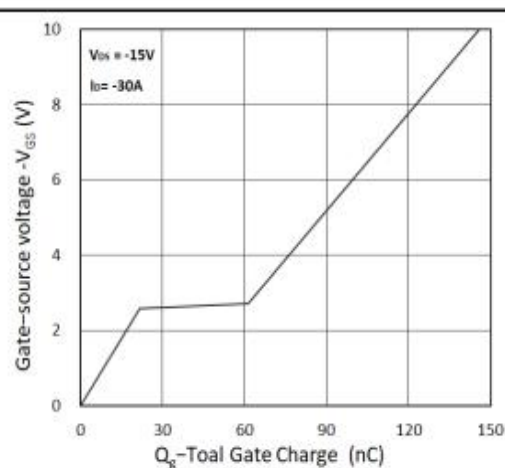


Figure 8. Gate Charge Characteristics

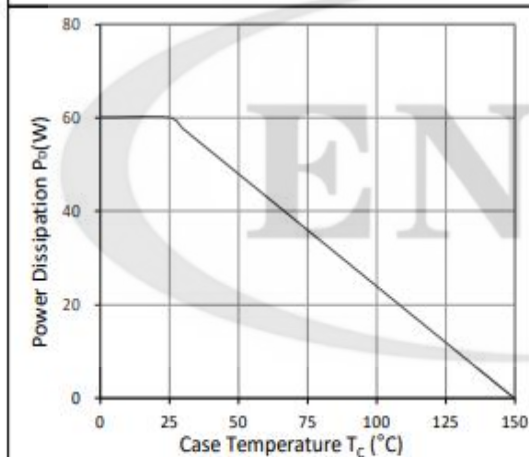


Figure 9. Power Dissipation

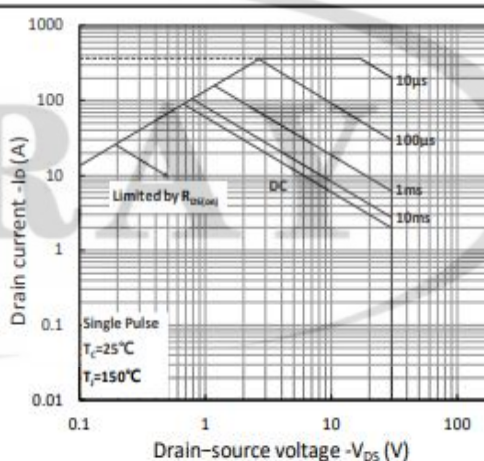


Figure10. Safe Operating Area

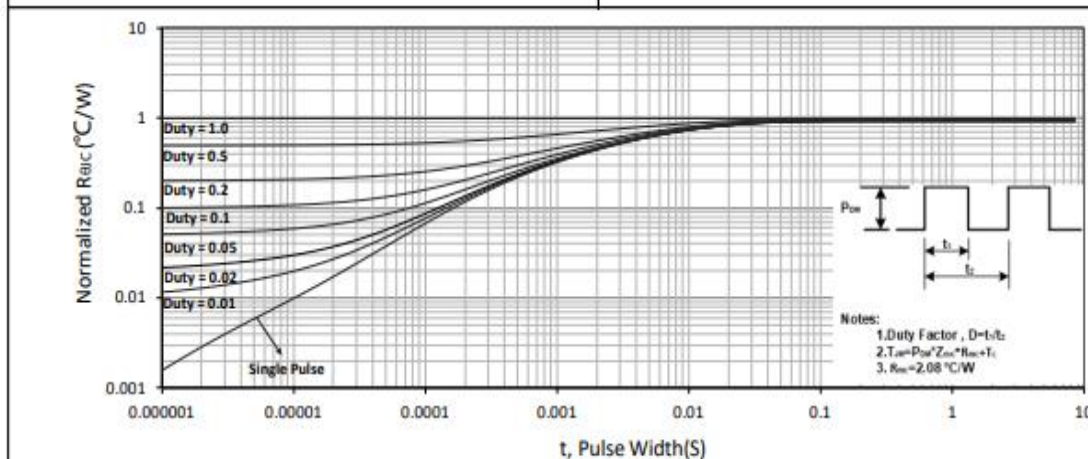
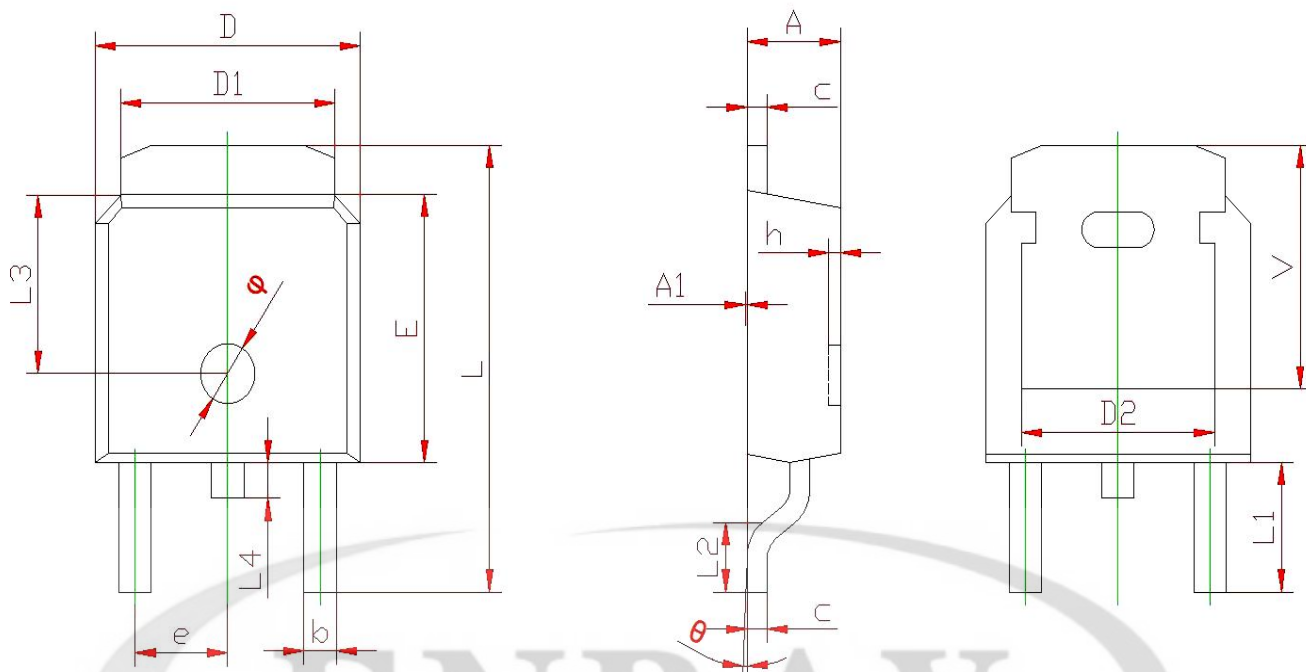


Figure 11. Normalized Maximum Transient Thermal Impedance

TO-252 Package Outline Dimesions


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
b	0.660	0.860	0.026	0.034
c	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	4.800 REF		0.189 REF	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.800	10.400	0.386	0.409
L1	2.900 REF		0.114 REF	
L2	1.400	1.700	0.055	0.067
L3	4.000REF		0.157 REF	
L4	0.600	1.000	0.024	0.039
Φ	1.100	1.300	0.043	0.051
θ	0°	8°	0°	8°
h	0.000	0.300	0.000	0.012
V	5.5000REF		0.217 REF	