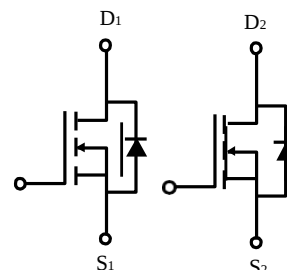
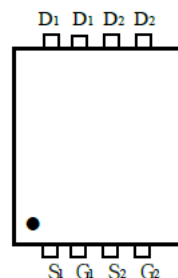


Daul N -Channel High Density TrenchMOSFET

FEATURES

- Super high dense cell trench design for low $R_{DS(on)}$.
- Rugged and reliable.
- Improved Shoot-Though FOM.
- Surface Mount package.

PDFN5x6



PRODUCT SUMMARY

V_{DSS}	I_D	$R_{DS(on)}$ (m Ω) Max
100V	20A	20 @ $V_{GS} = 10V$
	16A	30 @ $V_{GS} = 4.5V$

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ C$ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous ^a @ $T_C = 25^\circ C$ -Pulse ^b	I_D	29	A
	I_{DM}	80	A
Drain-Source Diode Forward Current ^a	I_S	29	A
Maximum Power Dissipation ^a	P_D	30	W
		12	
Operating Junction and Storage Temperature Range	T_J, T_{STG}	- 55 to 150	$^\circ C$

THERMAL CHARACTERISTICS

Thermal Resistance,Junction-to-Ambient ^a	R_{thJA}	62.5	$^\circ C/W$
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Note :

a. Surface Mounted on FR4 Board , $t \leq 10sec$.

b. Pulse width limited by maximum junction temperature .

ELECTRICAL CHARACTERISTICS (T_c = 25 °C unless otherwise noted)

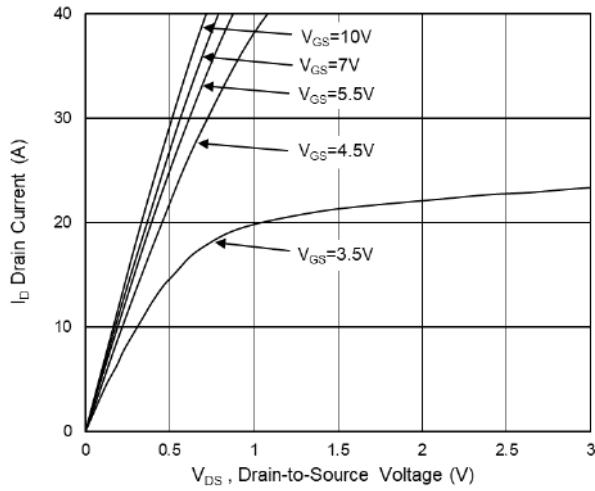
Parameter	Symbol	Condition	Min	Typ ^c	Max	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V , I _D = 250uA	100			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 80V , V _{GS} = 0V			1	uA
Gate-Body Leakage	I _{GSS}	V _{GS} = 20V , V _{DS} = 0V			±100	nA
ON CHARACTERISTICS ^b						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250uA	1	1.8	2.5	V
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} = 10V , I _D =20A		16	20	mΩ
		V _{GS} = 4.5V , I _D = 16 A		22	30	mΩ
Forward Transconductance	g _{fs}	V _{DS} = 5V , I _D =16 A		18		S
DRAIN-SOURCE DIODE CHARACTERISTICS ^b						
Diode Forward Voltage	V _{SD}	V _{GS} = 0V , I _S = 20A			1.2	V
DYNAMIC CHARACTERISTICS ^c						
Input Capacitance	C _{ISS}	V _{DS} = 50V , V _{GS} = 0V f = 1.0MHz		849		pF
Output Capacitance	C _{OSS}			185		pF
Reverse Transfer Capacitance	C _{RSS}			8		pF
SWITCHING CHARACTERISTICS ^c						
Turn-On Delay Time	t _{D(ON)}	V _{DD} = 30V , I _D = 1A V _{GEN} = 10V R _{GEN} = 6 Ω		13		ns
Rise Time	t _r			6		ns
Turn-Off Delay Time	t _{D(OFF)}			30		ns
Fall Time	t _f			29		ns
Total Gate Charge	Q _g	V _{DS} =50V		17.9		nC
Gate-Source Charge	Q _{gs}	I _D = 20A		2.8		nC
Gate-Drain Charge	Q _{gd}	V _{GS} = 10V		5.2		nC

Note :

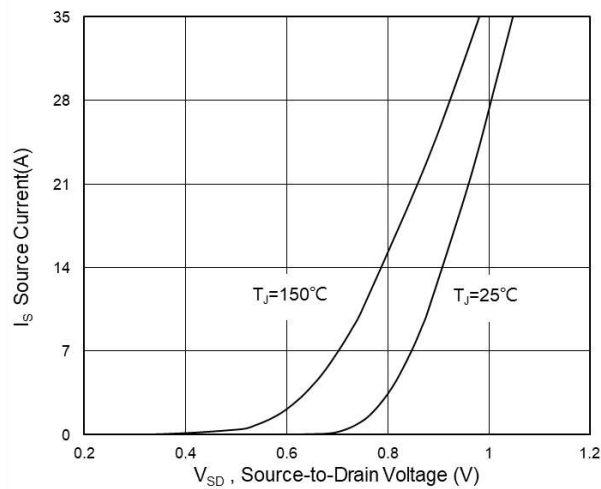
b. Pulse Test : Pulse width ≤ 300us , Duty Cycle ≤ 2% .

c. Guaranteed by design , not subject to production testing .

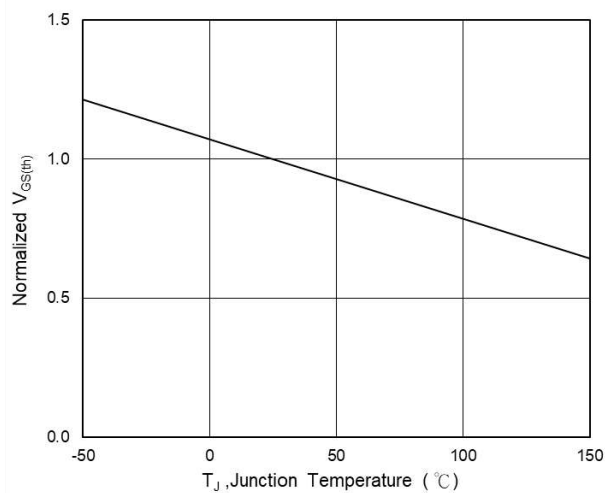
Typical Characteristics



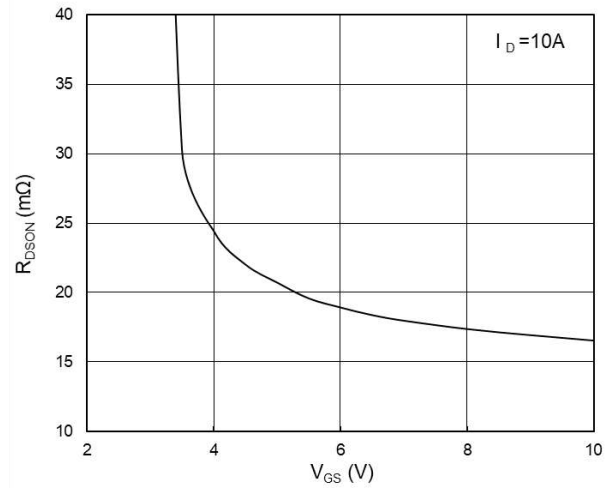
Typical Output Characteristics



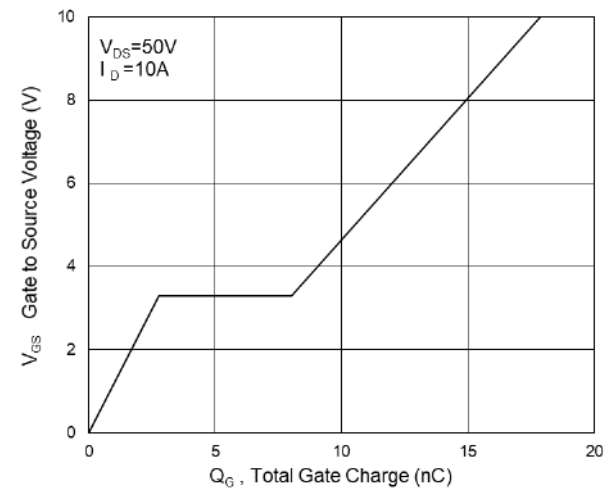
Source Drain Forward Characteristics



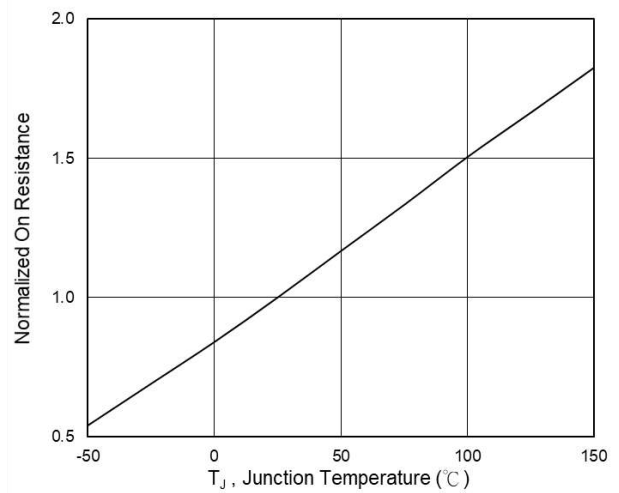
Normalized $V_{GS(th)}$ vs T_J



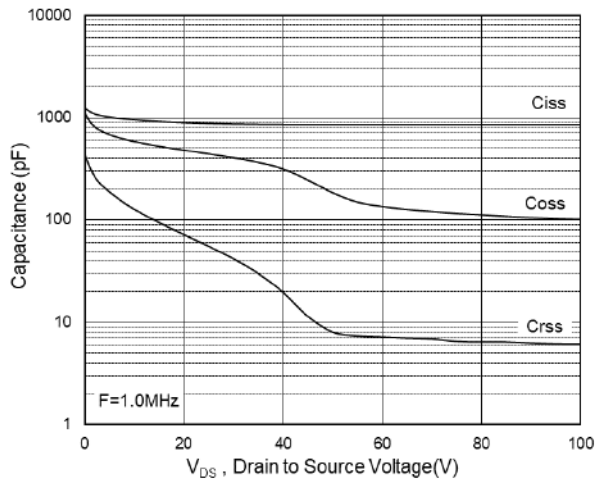
On-Resistance vs G-S Voltage



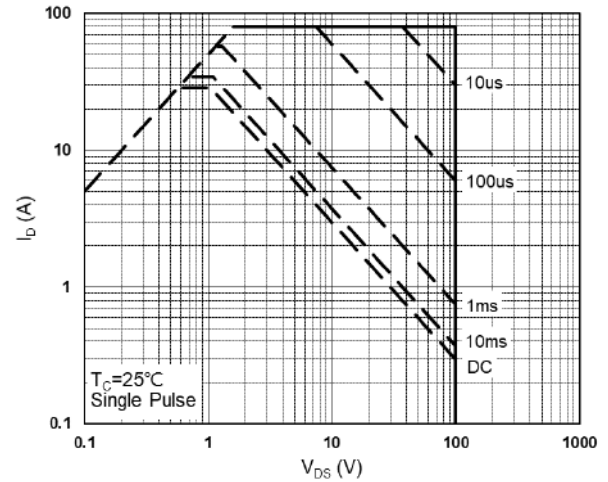
Gate-Charge Characteristics



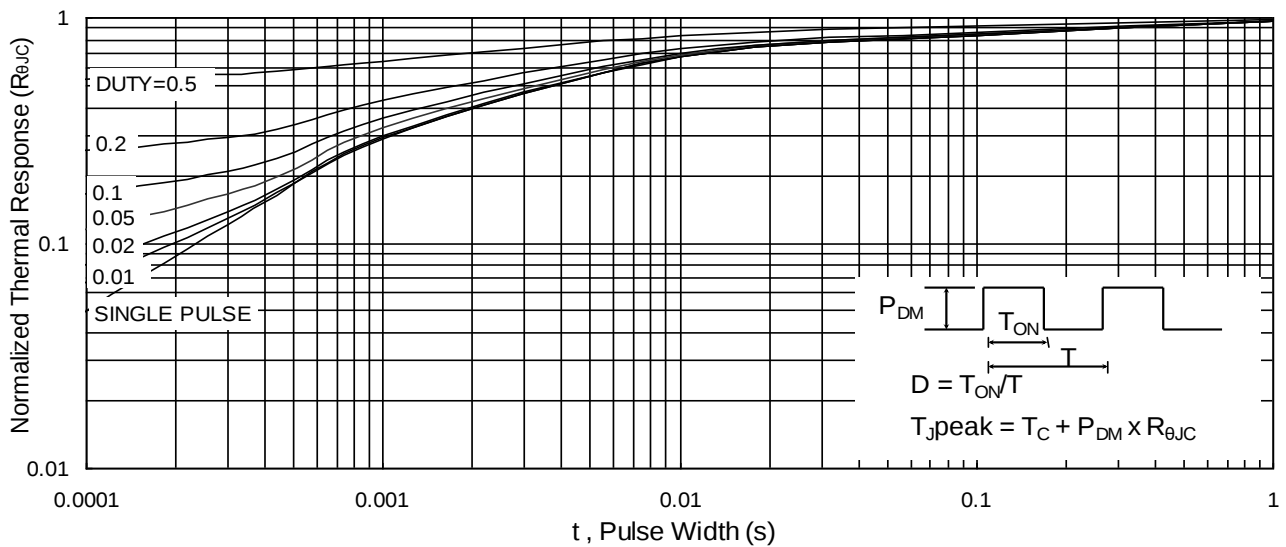
Normalized $R_{DS(on)}$ vs T_J



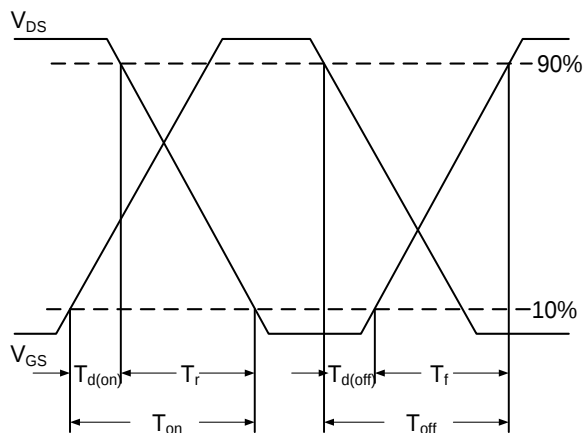
Capacitance



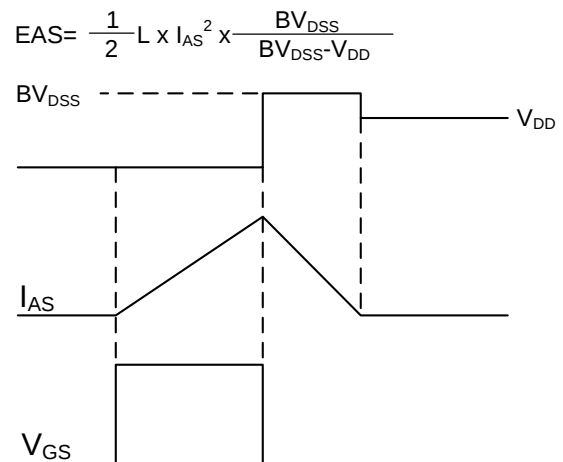
Safe Operating Area



Normalized Maximum Transient Thermal Impedance



Switching Time Waveform



Unclamped Inductive Switching Waveform