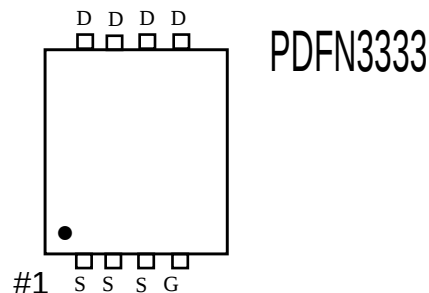


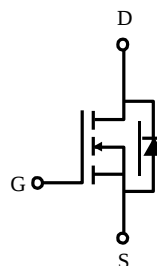
N-Channel High Density Trench MOSFET

FEATURES

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



PRODUCT SUMMARY		
$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
30V	4 m Ω	58A



PARAMETERS TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Gate-Source voltage		V_{GS}	± 20	V
Continuous Drain current	$T_C = 25^\circ\text{C}$	I_D	58	A
	$T_C = 100^\circ\text{C}$		36	
Pulsed Drain Current ¹		I_{DM}	136	
Avalanche Current		I_{AS}	32	mJ
Avalanche Energy	$L=0.1\text{mH}$	E_{AS}	23	
Power Dissipation	$T_C = 25^\circ\text{C}$	P_D	62	W
	$T_C = 100^\circ\text{C}$		38	
Operating junction & Storage Temperature Range		T_s, T_{stg}	-55 to 150	$^\circ\text{C}$

THERMAL CHARACTERISTICS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Case	$R_{\theta Jc}$		4.5	$^\circ\text{C/W}$
Junction-to-Ambient	$R_{\theta JA}$		48	$^\circ\text{C/W}$

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltege	V _{(BR)DSS}	V _{GS} =0V,I _D =250μA	30			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} ,I _D =250μA	1	1.6	2.5	
Gate-Body Leakage	I _{GSS}	V _{DS} =0V,V _{GS} =± 20V			±100	nA
Zero Gate Voltage Dain Current	I _{DSS}	V _{DS} =24V,V _{GS} =0 V			1	μA
		V _{DS} =20V,V _{GS} =0V,T _J =125 °C			30	
Drain-Source On- State Resistance ¹	R _{DS(ON)}	V _{GS} =4.5V,I _D =16A		7.8	10	mΩ
		V _{GS} =10V,I _D =20A		4	6	
Forward Trans conductance ¹	g _{fs}	V _{DS} =5V,I _D =16A		28		S

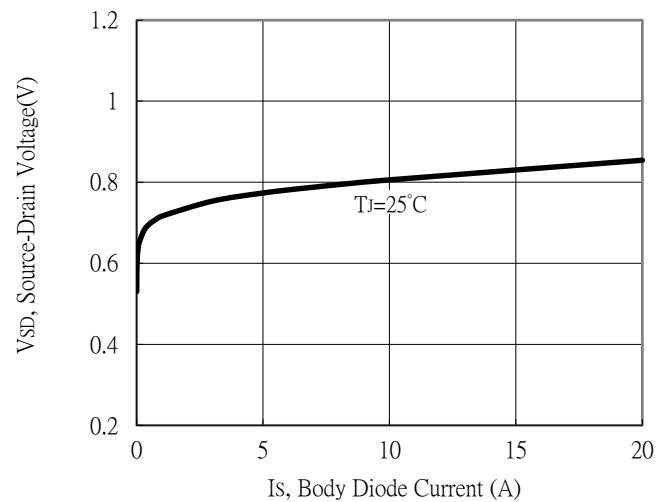
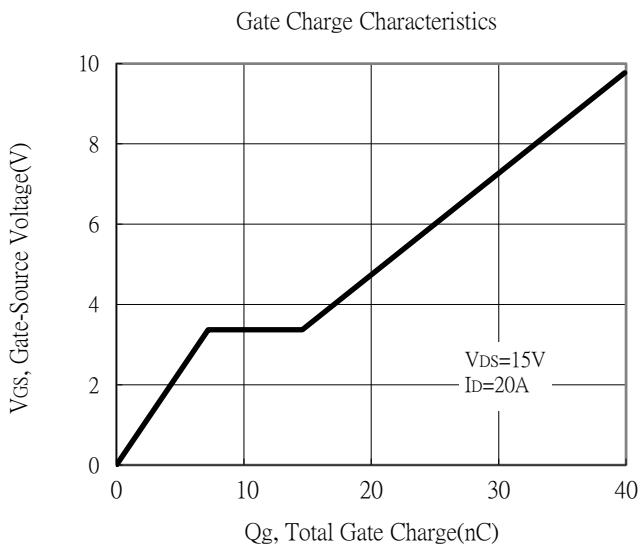
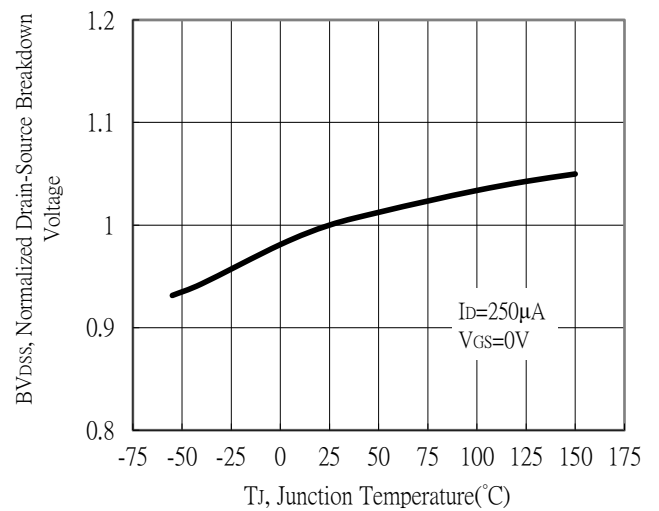
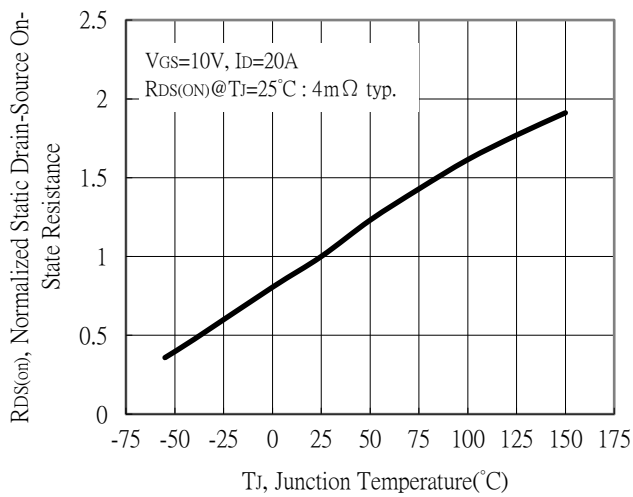
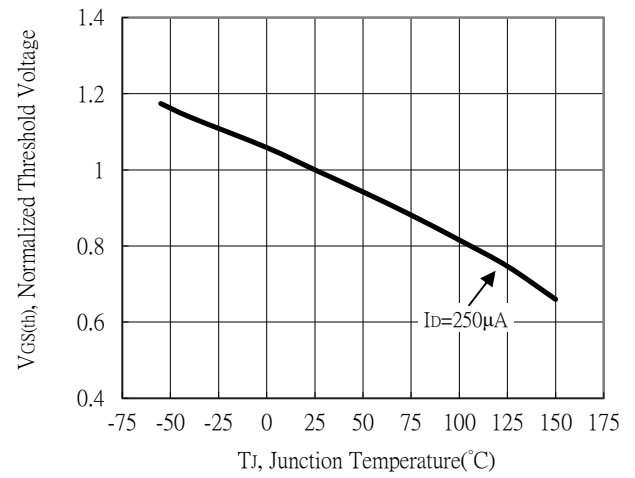
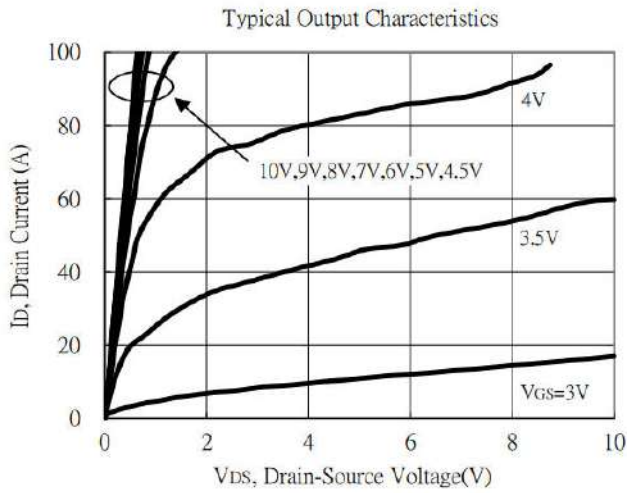
DYNAMIC						
Input Capacitance	C_{iss}	$V_{GS}=0V, V_{DS}=15V, f=1MHz$		1380		pF
Output Capacitance	C_{oss}			218		
Reverse Transfer Capacitance	C_{rss}			187		
Gate Resistance	R_G	$V_{GS}=0V, f=1MHz$		2.8		Ω
Total Gate Charge ²	$Q_{g(vgs=10V)}$	$V_{DS}=15V_{(BR)DSS},$ $I_D=20A$		48.5		nC
	$Q_{g(vgs=4.5V)}$			27		
Gate Source Charge ²	$Q_{gS(VGS=10V)}$			3.5		
	$Q_{gS(VGS=4.5V)}$			2.9		
Gate-Drain Charge ²	$Q_{gd(VGS=10V)}$			15		
	$Q_{gd(VGS=4.5V)}$			9.5		
Turn-On Delay Time ²	$t_{d(on)}$	$V_{DS}=15V,$ $I_D=20A, V_{GS}=10V, R_{GS}=6\Omega$		9.2		nS
Rise Time ²	t_r			22.1		
Turn-Off Delay Time ²	$t_{d(off)}$			51.7		
Fall Time ²	t_f			22		

SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS($T_J=25^\circ C$)

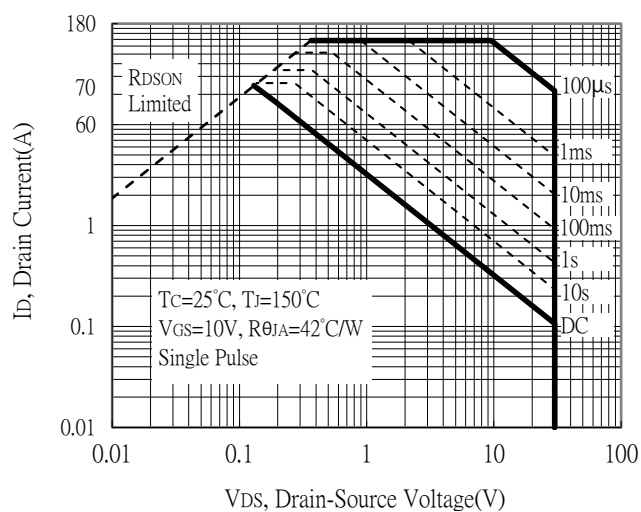
Continuous Current	I_S			48		A
Forward Voltage ¹	V_{SD}	$I_F=I_S, V_{GS}=0V$		0.75	1.2	V
Reverse Recovery Time	T_{rr}	$I_F=20V, dI_F/dt=100A/\mu s$		20.3		nS
Reverse Recovery Charge	Q_{rr}			9.7		nC

Note

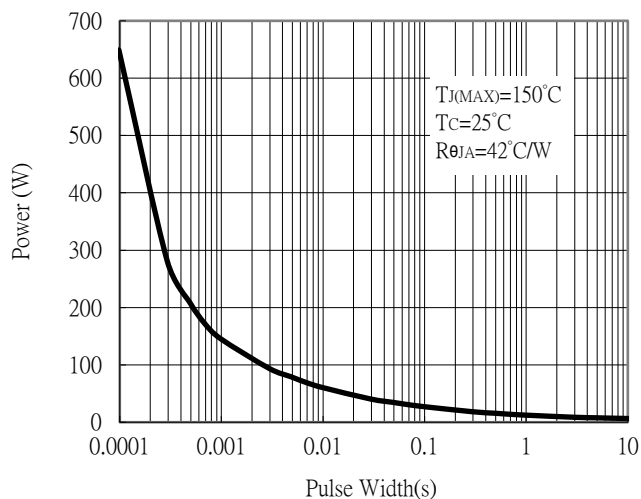
b. Pulse Test Pulse width $\leq 300\mu sec$, Duty Cycle $\leq 2\%$.
c. Independent of operating production testing .



Maximum Safe Operating Area



Single Pulse Power Rating, Junction to Ambient



Transient Thermal Response Curves

