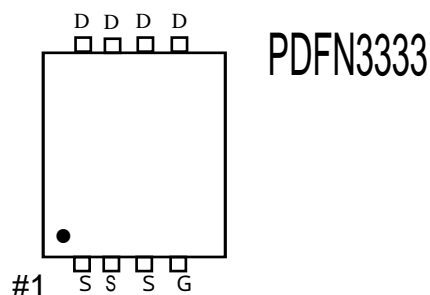


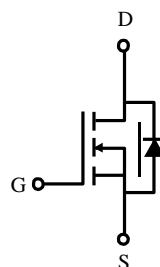
N-Channel High Density Trench MOSFET

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	3.8m Ω	48A



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

PARAMETERS TEST CONDITIONS	SYMBOL	LIMITS	UNITS
Gate-Source voltage	V_{GS}	± 20	V
Continuous Drain current	I_D	$T_A = 25$	48
		$T_A = 100$	32
Pulsed Drain Current ¹	I_{DM}	150	A
Avalanche Current	I_{AS}	32	
Avalanche Energy	E_{AS}	72	mJ
Power Dissipation	P_D	$T_A = 25$	32
		$T_A = 100$	14
Operating junction & Storage Temperature Range	$T_s T_{stg}$	-55 to 150	

THERMAL CHARACTERISTICS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Case	$R_{\theta Jc}$		4	$^\circ\text{C}/\text{W}$
Junction-to-Ambient	$R_{\theta JA}$		62	$^\circ\text{C}/\text{W}$

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

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	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} =± V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =24V, V _{GS} =0 V			1	μA
		V _{DS} =20V, V _{GS} =0V, T _J =125			30	
Drain-Source On- State Resistance ¹	R _{DS(ON)}	V _{GS} =4.5V, I _D =16A		4.8	5.5	mΩ
		V _{GS} =10V, I _D =20A		3.8	4.5	
Forward Trans conductance ¹	g _{fs}	V _{DS} =5V, I _D =13A		30		S

DYNAMIC								
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =15V, f=1MHz		2015		pF		
Output Capacitance	C _{oss}			365				
Reverse Transfer Capacitance	C _{rss}			205				
Gate Resistance	R _G	V _{GS} =0V, f=1MHz		2.0		Ω		
Total Gate Charge ²	Q _{g(vgs=10V)}	V _{DS} =0.5V _{(BR)DSS} , I _D = A		42		nC		
	Q _{g(vgs=4.5V)}			21				
Gate Source Charge ²	Q _{gS(VGS=10V)}			6				
	Q _{gS(VGS=4.5V)}			4.1				
Gate-Drain Charge ²	Q _{gd(VGS=10V)}			9				
	Q _{gd(VGS=4.5V)}			6.2				
Tum-On Delay Time ²	t _{d(on)}		V _{DS} =15V, R _L =1.5Ω I _D =20A, V _{GS} =10V. R _{GS} =6Ω		15			nS
Rise Time ²	t _r				20			
Tum-Off Delay Time ²	t _{d(off)}			72				
Fall Time ²	t _r			20				

SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J=25 °C)

Continuous Current	I _S			28		A
Forward Voltage ¹	V _{SD}	I _F =I _S , V _{GS} =0V		0.75	1.1	V
Reverse Recovery Time	T _{rr}	I _F =20V, d _{1t} /d _t =100A/μs		15		nS
Reverse Recovery Charge	Q _{rr}			8		nC

Note

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

c. Independent of operating production testing .

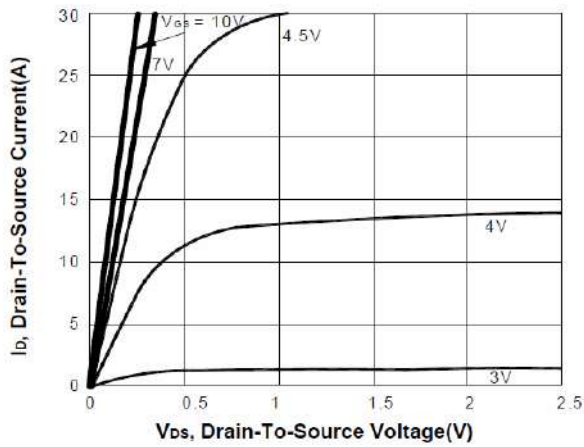


Figure 1. Output Characteristics

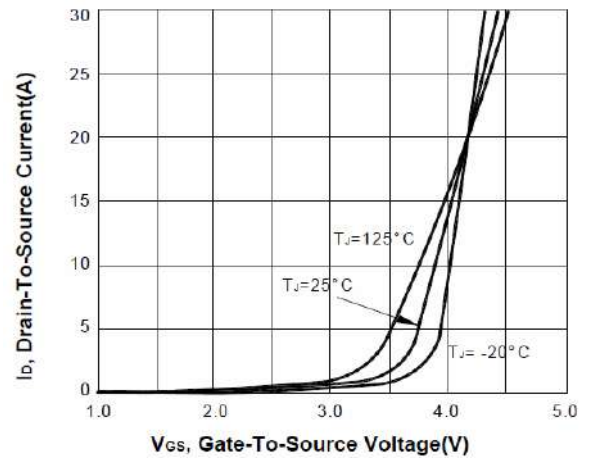


Figure 2. Transfer Characteristics

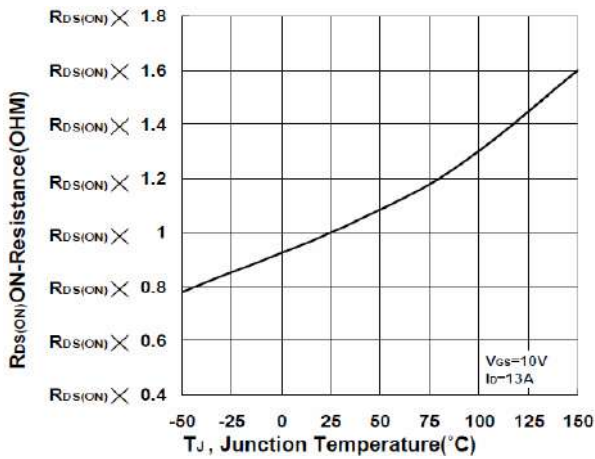


Figure 3. On-Resistance VS Temperature

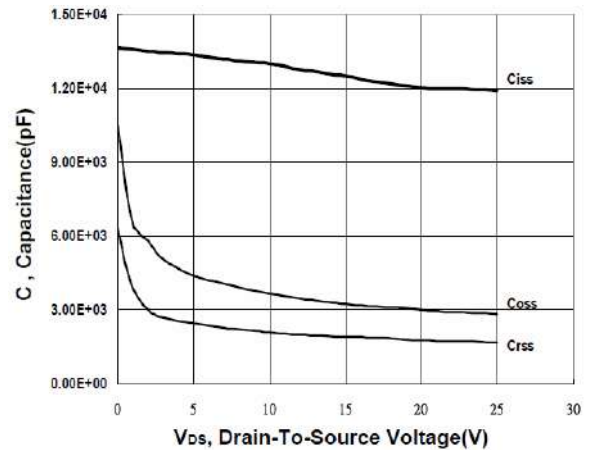


Figure 4. Capacitance Characteristic

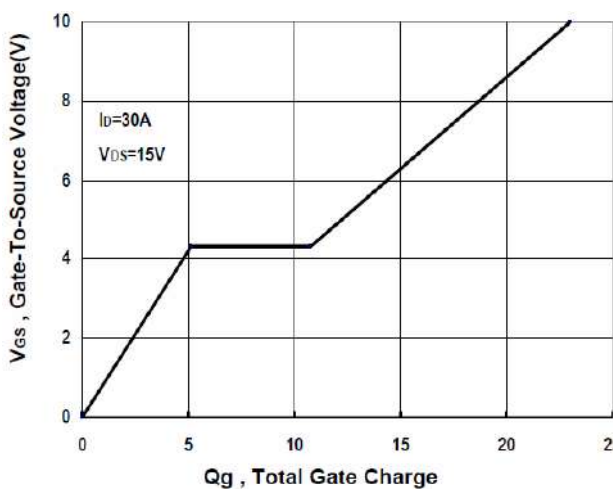


Figure 5. Gate charge Characteristics

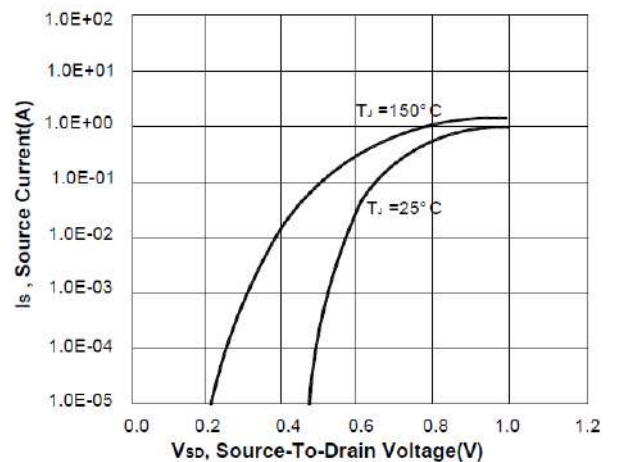


Figure 6. Source-Drain Diode Forward Voltage

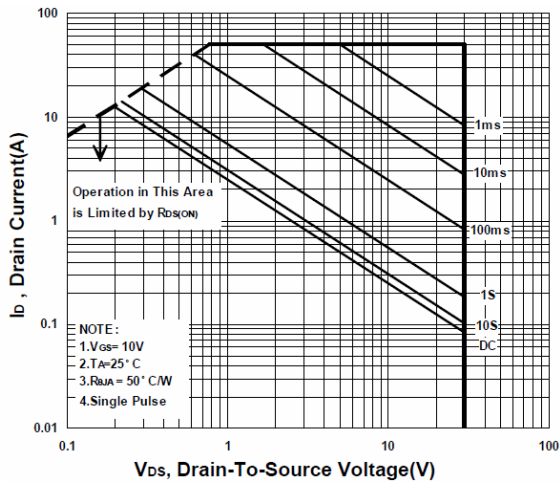


Figure 7. Safe Operating Area

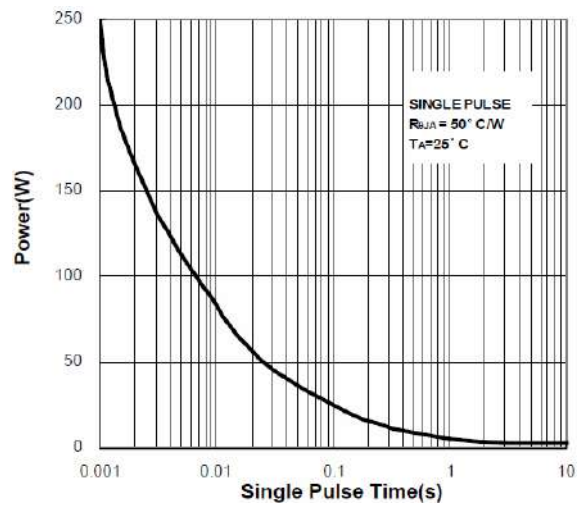


Figure 8 Single Pulse Maximum Power Dissipation

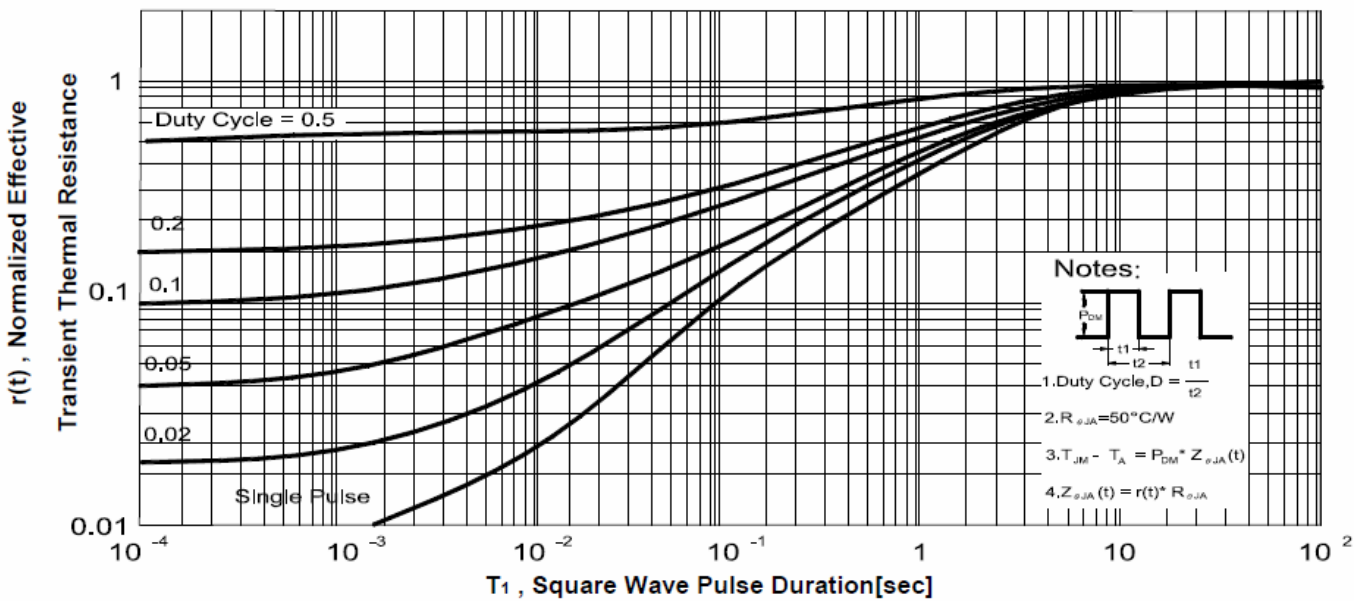


Figure 9. Transient Thermal Response Curve