

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D	$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
100V	130mΩ@10V	3A	-100V	200mΩ@-10V	-3A
	140mΩ@4.5V			230mΩ@-4.5V	

Feature

- Advanced trench technology
- Excellent $R_{DS(on)}$
- Low gate charge
- High power and current handling capability

Application

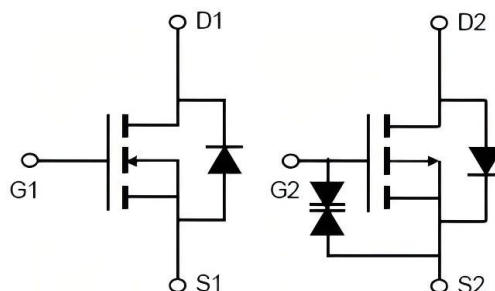
- Inverter and other applications

Package

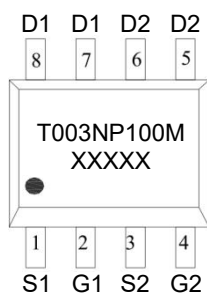


SOP-8

Circuit diagram



Marking



Absolute maximum ratings (T_C=25°C unless otherwise noted)

Parameter	Symbol	N-Channel	P-Channel	Unit
Drain-Source Voltage	V _{DS}	100	-100	V
Gate-Source Voltage	V _{GS}	±20	±20	V
Continuous Drain Current (T _A =25°C)	I _D	3	-3	A
Continuous Drain Current (T _A =70°C)	I _D (70°C)	2.45	-2.45	
Pulsed Drain Current ¹⁾	I _{DM}	12	-12	A
Power Dissipation (T _A =25°C)	P _D	2	2	W
Thermal Resistance Junction to Ambient ²⁾	R _{θJA}	62.5	62.5	°C/W
Operating Junction Temperature	T _J	-55 ~ +150	-55 ~ +150	°C
Storage Temperature	T _{STG}	-55 ~ +150	-55 ~ +150	°C

N-CH Electrical characteristics (T_C=25 °C, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250μA	100			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =100V, V _{GS} =0V			1	μA
Gate-body leakage current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Gate threshold voltage ³⁾	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1	1.5	2	V
Drain-source on-resistance ³⁾	R _{DS(on)}	V _{GS} =10V, I _D =3A		95	130	mΩ
		V _{GS} =4.5V, I _D =3A		100	140	
Dynamic characteristics ⁴⁾						
Input Capacitance	C _{iss}	V _{DS} =50V, V _{GS} =0V, f =1MHz		730		pF
Output Capacitance	C _{oss}			37		
Reverse Transfer Capacitance	C _{rss}			27		
Total Gate Charge	Q _g	V _{DS} =50V, V _{GS} =10V, I _D =3A		21.5		nC
Gtae-Source Charge	Q _{gs}			3.2		
Gtae-Drain Charge	Q _{gd}			6		
Turn-on delay time	t _{d(on)}	V _{DS} =50V, V _{GS} =10V, R _L =15Ω R _G =2.5Ω		11		nS
Turn-on rise time	t _r			7.4		
Turn-off delay time	t _{d(off)}			35		
Turn-off fall time	t _f			9.1		
Source-Drain Diode characteristics						
Diode Forward Current	I _S				3	A
Diode Forward voltage ³⁾	V _{SD}	V _{GS} =0V, I _S =3A			1.2	V
Reverse recover time	T _{rr}	I _F =3A, di/dt =100A/us ³⁾ T _J =25°C		26		nS
Reverse recovery charge	Q _{rr}			27		nC

P-CH Electrical characteristics (T_A=25 °C, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =-250μA	-100			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =-100V, V _{GS} =0V			-1	μA
Gate-body leakage current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±10	μA
Gate threshold voltage ³⁾	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-1	-1.9	-3	V
Drain-source on-resistance ³⁾	R _{DS(on)}	V _{GS} =-10V, I _D =-3A		170	200	mΩ
		V _{GS} =-4.5V, I _D =-2A		200	230	
Dynamic characteristics ⁴⁾						
Input Capacitance	C _{iss}	V _{DS} =-25V, V _{GS} =0V, f =1MHz		760		pF
Output Capacitance	C _{oss}			260		
Reverse Transfer Capacitance	C _{rss}			170		
Total Gate Charge	Q _g	V _{DS} =-50V, V _{GS} =-10V I _D =-3A		25		nC
Gtae-Source Charge	Q _{gs}			5		
Gtae-Drain Charge	Q _{gd}			7		
Turn-on delay time	t _{d(on)}	V _{DS} =-50V, V _{GS} =-10V I _D =-3A, R _G =9Ω		14		nS
Turn-on rise time	t _r			18		
Turn-off delay time	t _{d(off)}			50		
Turn-off fall time	t _f			18		
Source-Drain Diode characteristics						
Diode Forward Current	I _S				-3	A
Diode Forward voltage ³⁾	V _{SD}	V _{GS} =0V, I _S =-3A			-1.2	V
Reverse recover time	T _{rr}	I _F =-3A, di/dt =-100A/us ³⁾ T _J =25℃		35		nS
Reverse recovery charge	Q _{rr}			46		nC

Notes:

- 1) Repetitive Rating: Pulse width limited by maximum junction temperature.
- 2) The value of R_{θJA} is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with T_A=25°C. The value in any given application depends on the user's specific board design. Surface Mounted on FR4 Board, t ≤ 10 sec. The current rating is based on the t ≤ 10s thermal resistance rating.
- 3) Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
- 4) Guaranteed by design, not subject to production testing.

N-Channel Typical Characteristics

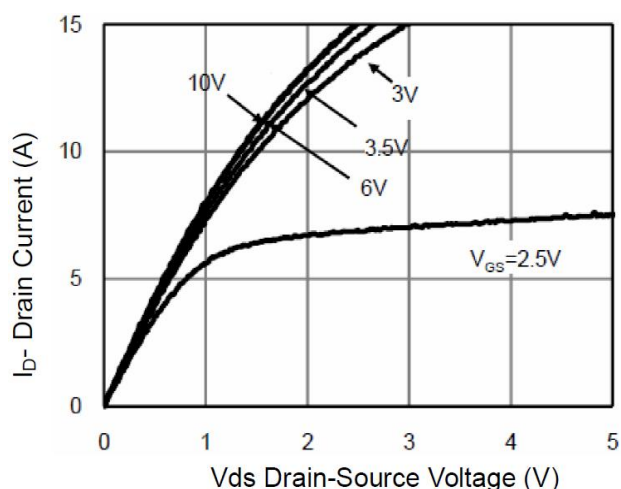


Figure 1 Output Characteristics

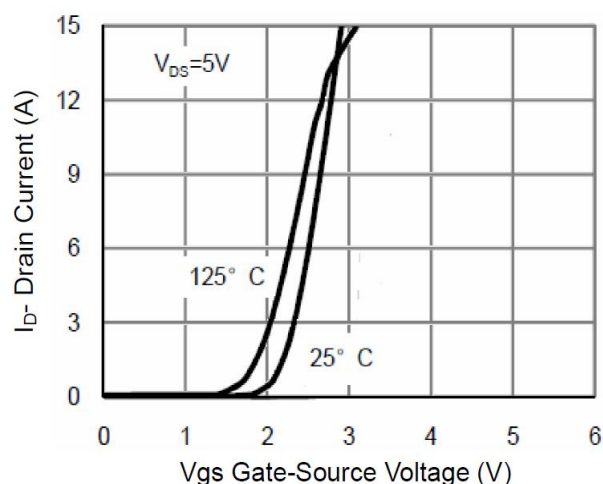


Figure 2 Transfer Characteristics

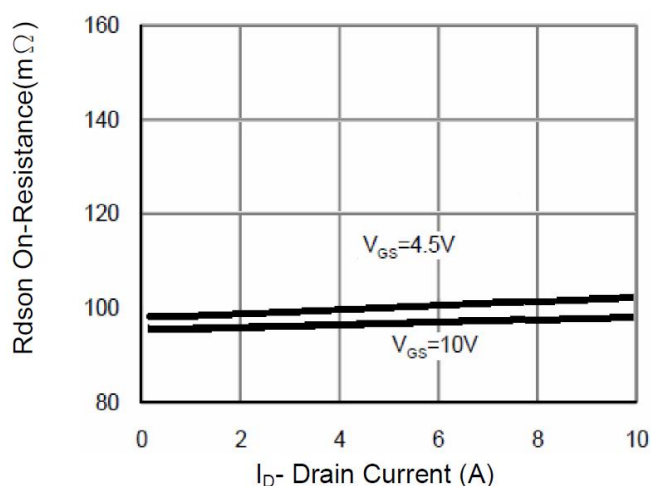


Figure 3 $R_{DS(on)}$ - Drain Current

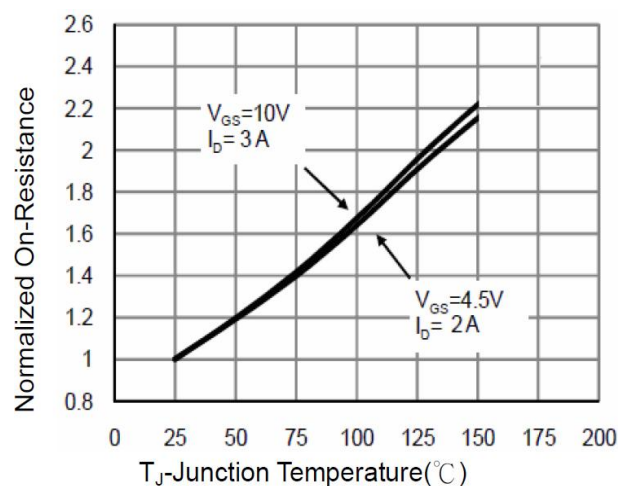


Figure 4 $R_{DS(on)}$ -Junction Temperature

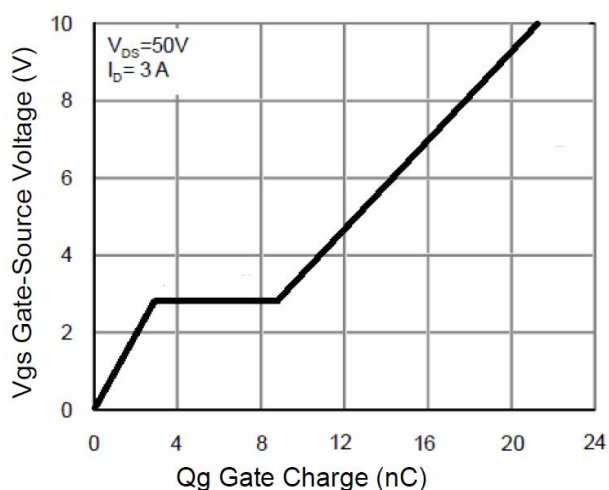


Figure 5 Gate Charge

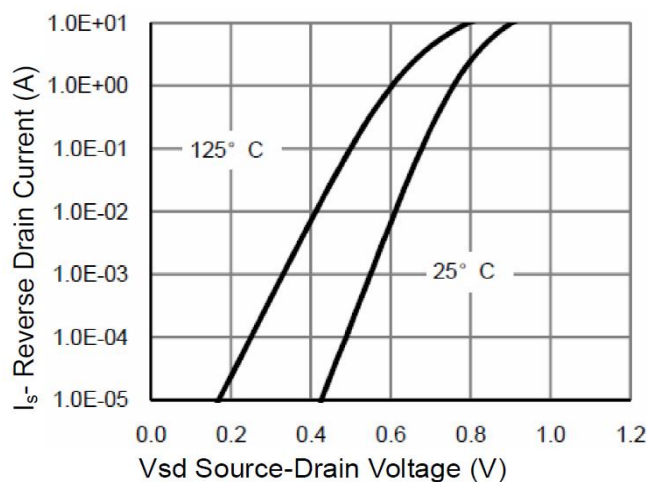


Figure 6 Source- Drain Diode Forward

N-Channel Typical Characteristics

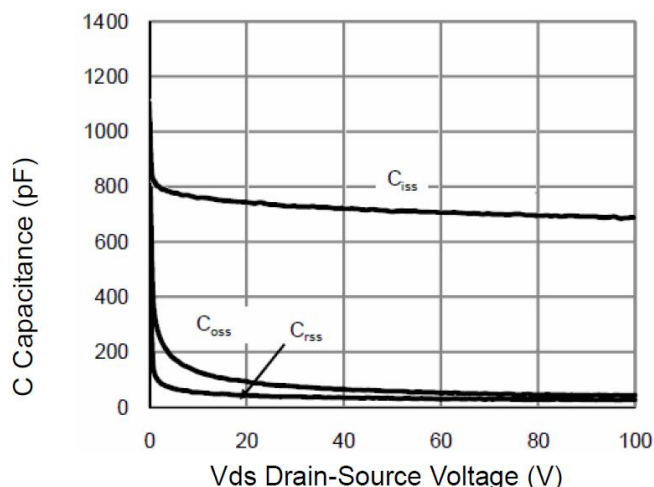


Figure 7 Capacitance vs Vds

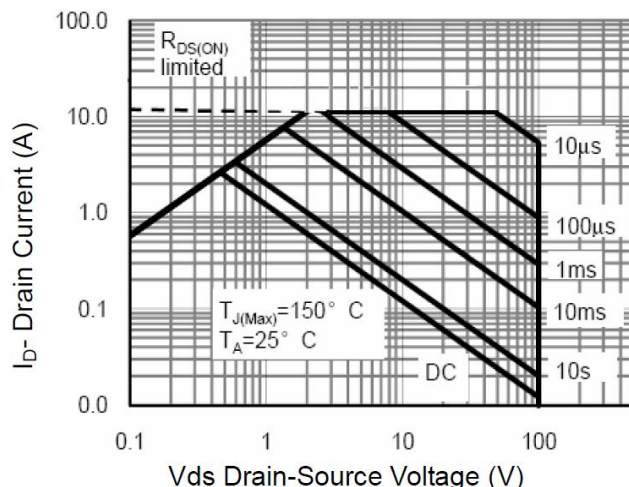


Figure 8 Safe Operation Area

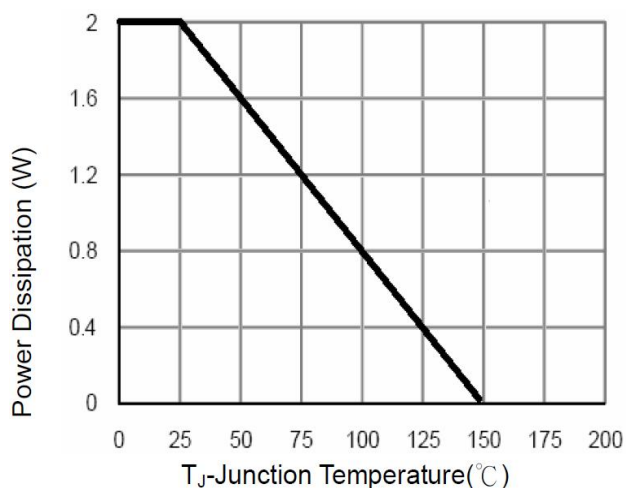


Figure 9 Power De-rating

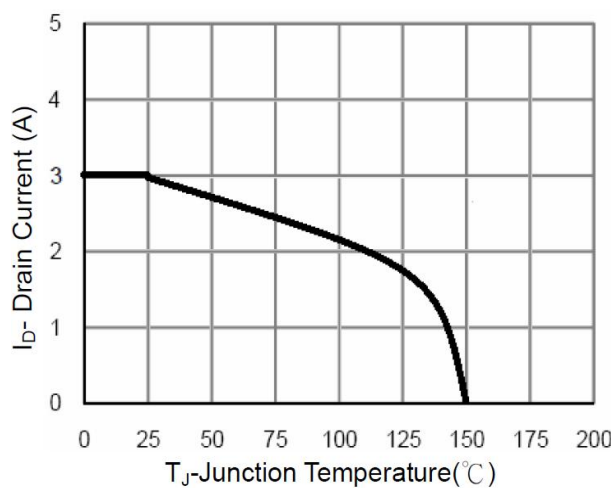


Figure 10 Current De-rating

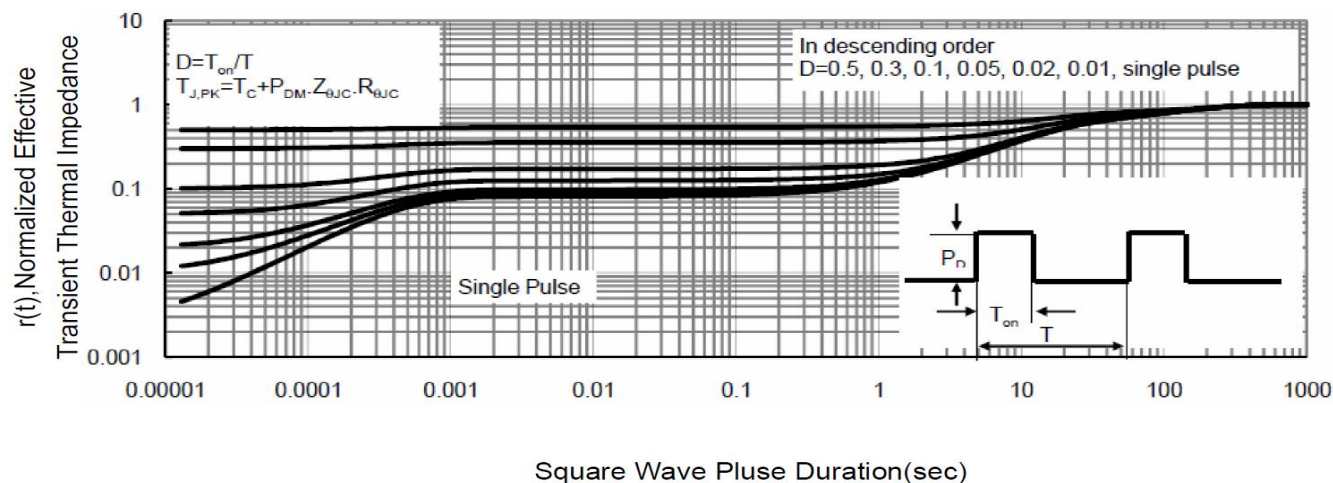


Figure 11 Normalized Maximum Transient Thermal Impedance

P-Channel Typical Characteristics

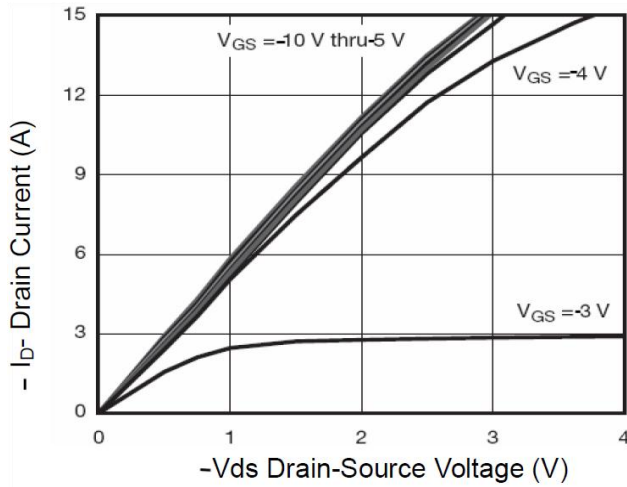


Figure 1 Output Characteristics

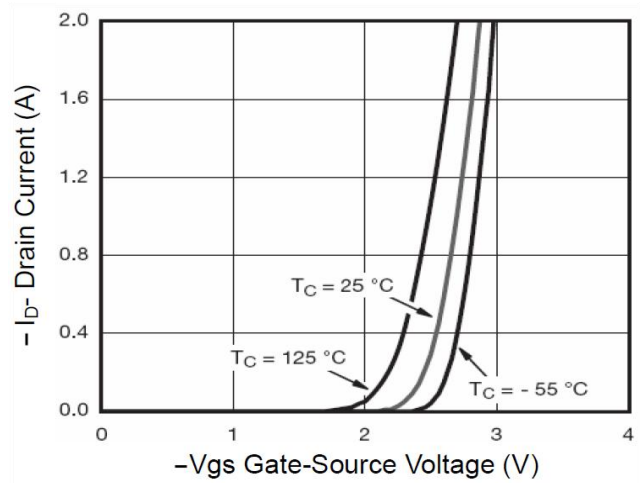


Figure 2 Transfer Characteristics

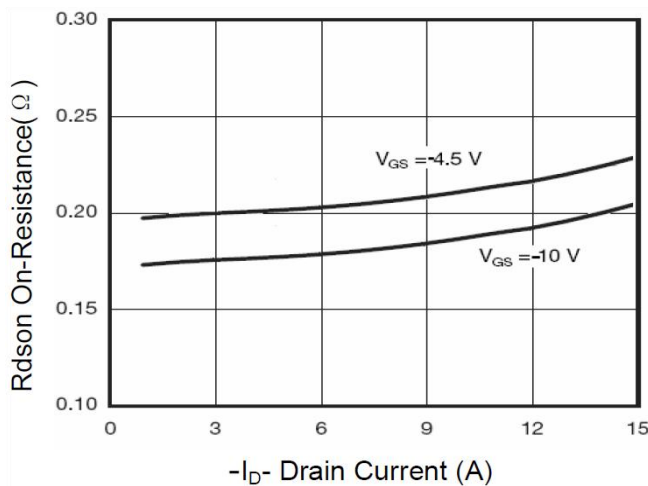


Figure 3 Rdson- Drain Current

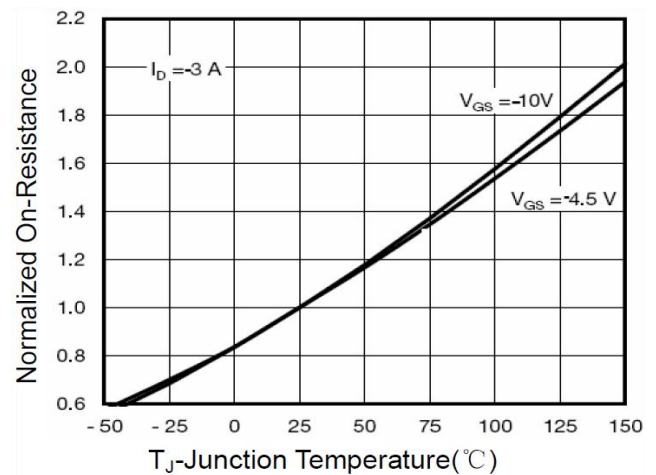


Figure 4 Rdson-Junction Temperature

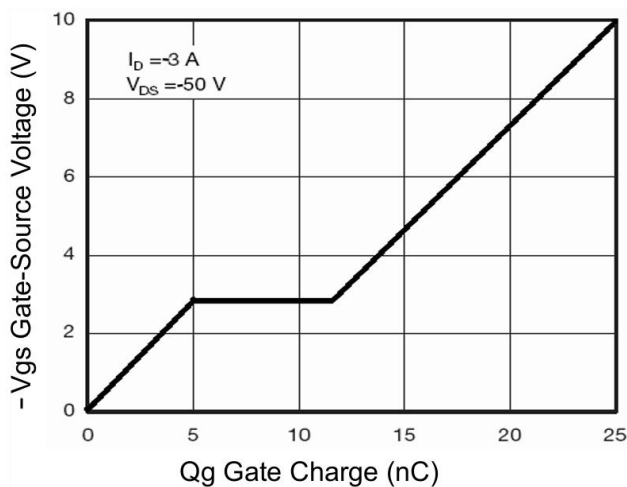


Figure 5 Gate Charge

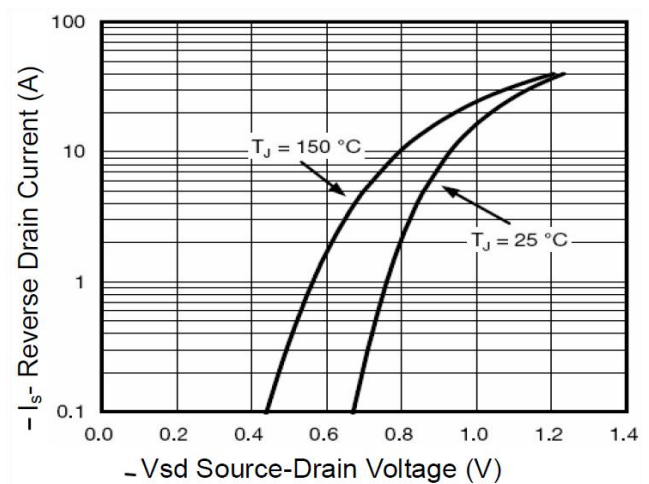


Figure 6 Source- Drain Diode Forward

P-Channel Typical Characteristics

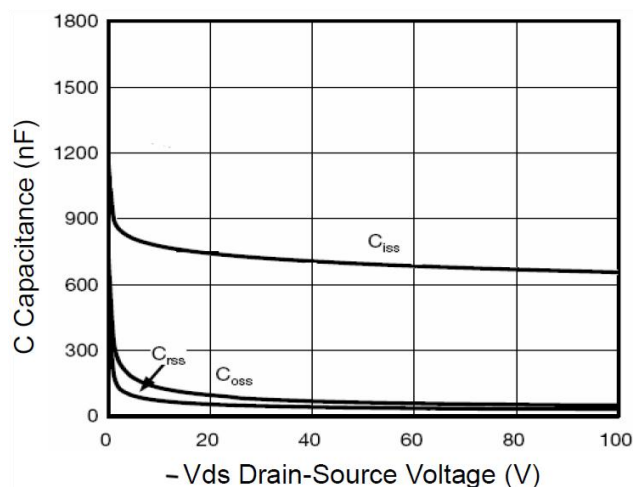


Figure 7 Capacitance vs Vds

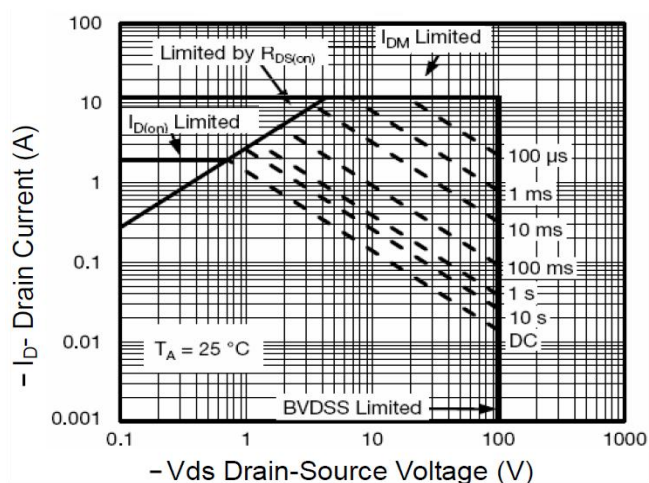


Figure 8 Safe Operation Area

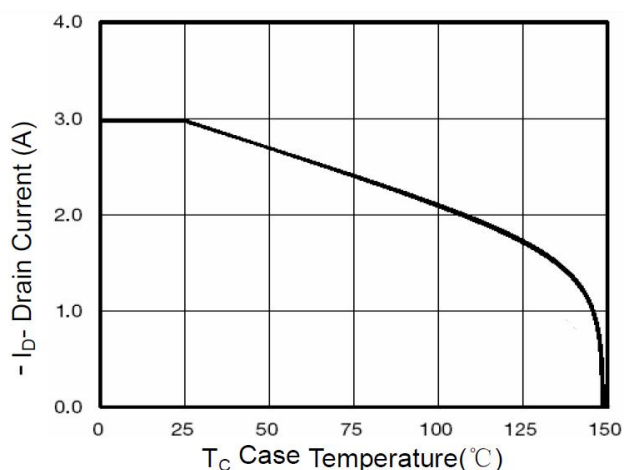


Figure 9 Drain Current vs Case Temperature

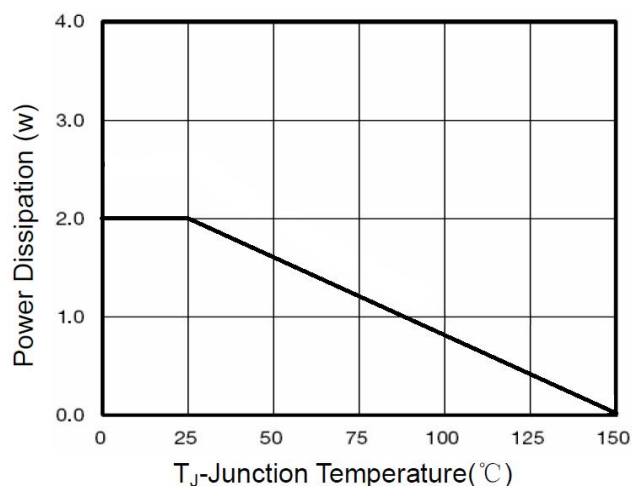


Figure 10 Power De-rating

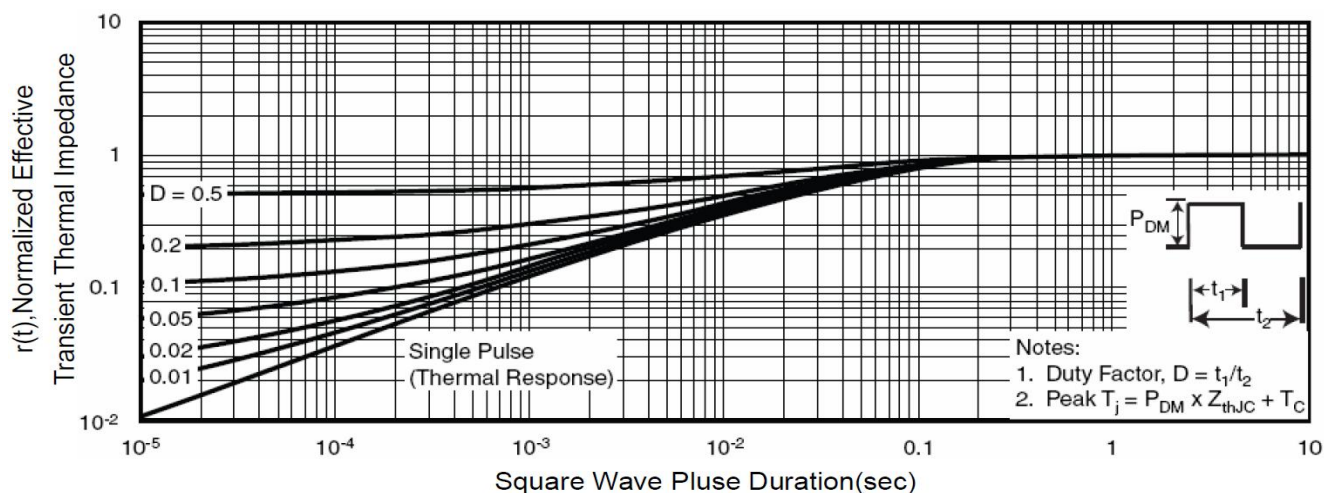
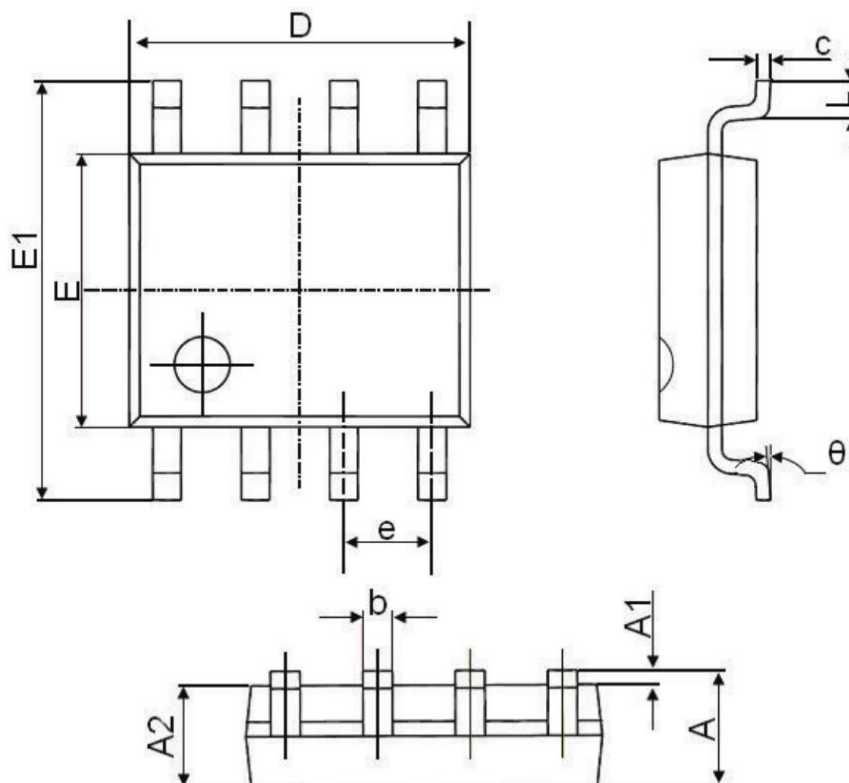


Figure 11 Normalized Maximum Transient Thermal Impedance

SOP-8 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.201
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270 BSC.		0.050 BSC.	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°