

PRODUCT CHARACTERISTICS

N-CHANNEL MOSFET		P-CHANNEL MOSFET	
V_{DSS}	30V	V_{DSS}	-30V
$R_{DS(ON)}$ Typ(@ $V_{GS}=10V$)	10m Ω	$R_{DS(ON)}$ Typ(@ $V_{GS}=-10V$)	14m Ω
$R_{DS(ON)}$ Typ(@ $V_{GS}=4.5V$)	15m Ω	$R_{DS(ON)}$ Typ(@ $V_{GS}=-4.5V$)	18m Ω
I_D	30A	I_D	-20A

APPLICATIONS

- * Electronic lamp ballasts based on half bridge
- * Load Switching, Quick/Wireless Charge.
- * Motor Driving

FEATURE

- * Low Gate Charge
- * Pb-Free Lead Plating



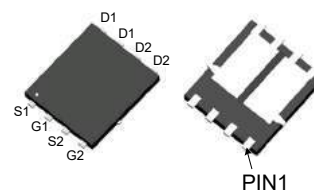
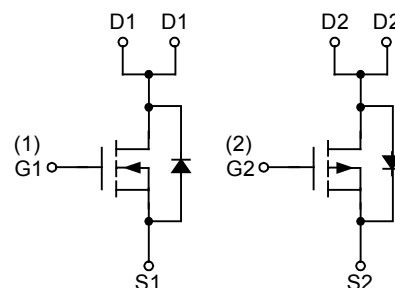
ORDER INFORMATION

Order Codes		Package	Packing
Halogen-Free	Halogen		
N/A	MOT3617J	PDFN3x3	5000 pieces/Reel

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

Parameter	Symbol	N-channel	P-channel	Unit
Drain-Source Voltage	V_{DSS}	30	-30	V
Gate-Source Voltage	V_{GSS}	± 20	± 20	V
Drain Current Continuous(@ $V_{GS}=\pm 10V$, $T_A=25^{\circ}C$)	I_D	30	-20	A
Drain Current Pulsed	I_{DM}	120	-80	A
Avalanche Energy	E_{AS}	81	110	mJ
Junction to Case	R_{thJC}	5	8.3	$^{\circ}C/W$
Power Dissipation	P_D	25	15	W
Junction Temperature	T_J	+150		$^{\circ}C$
Storage Temperature	T_{STG}	-55~ +150		$^{\circ}C$

Symbol



PDFN3x3

■ N-MOS ELECTRICAL CHARACTERISTICS ($T_C=25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Off characteristics						
Drain to Source Breakdown Voltage	V _{DSS}	V _{GS} =0V,I _D =250μA	30	-	-	V
Drain to Source Leakage Current	I _{DSS}	V _{DS} =30V,V _{GS} =0V	-	-	1	μA
Gate to Source Forward Leakage	I _{GSS(F)}	V _{GS} =+20V,V _{DS} =0V	-	-	100	nA
Gate to Source Reverse Leakage	I _{GSS(R)}	V _{GS} =-20V ,V _{DS} =0V	-	-	-100	nA
On characteristics						
Drain to Source On-Resistance	R _{DS(ON)}	V _{GS} =10V,I _D =15A	-	10	15	mΩ
		V _{GS} =4.5V,I _D =15 A	-	15	19	mΩ
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} ,I _D =250μA	1	1.8	2.5	V
Dynamic characteristics						
Gate capacitance	R _g	V _{GS} =0V,V _{DS} =0V ,f=1.0MHz	-	1.5	-	Ω
Forward Transconductance	g _{fs}	V _{DS} =10V,I _D =3A	-	5	-	S
Input Capacitance	C _{iss}	V _{DS} =20V,V _{GS} =0V f=1.0MHz	-	821	-	pF
Output Capacitance	C _{oss}		-	119	-	pF
Reverse Transfer Capacitance	C _{rss}		-	79	-	pF
Resistive Switching Characteristics						
Turn-on Delay Time	t _{d(ON)}	V _{GS} =10V, V _{DS} =15V, I _D =15 A,R _G =3Ω	-	6.7	-	ns
Rise Time	t _r		-	15	-	ns
Turn-off Delay Time	t _{d(OFF)}		-	25	-	ns
Fall Time	t _f		-	5.6	-	ns
Total Gate Charge	Q _g	I _D =15 A, V _{DS} =15V V _{GS} =10V	-	23	-	nC
Gate to Source Charge	Q _{gs}		-	4.5	-	nC
Gate to Drain("Miller") Charge	Q _{gd}		-	5.5	-	nC
Source-Drain Diode Characteristics						
Continuous Source Current(Body Diode)	I _s		-	-	30	A
Maximum Pulsed Current(Body Diode)	I _{SM}		-	-	120	A
Diode Forward Voltage	V _{SD}	I _{SD} =1A, V _{GS} =0V	-	0.73	1.2	V
Reverse Recovery Time	t _{rr}	I _{SD} =15 A, T _j =25℃	-	12	-	ns
Reverse Recovery Charge	Q _{rr}	dI /dt=100A/μs	-	6	-	nC

■ P-MOS ELECTRICAL CHARACTERISTICS ($T_C=25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Off characteristics						
Drain to Source Breakdown Voltage	V _{DSS}	V _{GS} =0V,I _D =-250μA	-30	-	-	V
Drain to Source Leakage Current	I _{DSS}	V _{DS} =-30V,V _{GS} =0V	-	-	-1	μA
Gate to Source Forward Leakage	I _{GSS(F)}	V _{GS} =+20V,V _{DS} =0V	-	-	100	nA
Gate to Source Reverse Leakage	I _{GSS(R)}	V _{GS} =-20V ,V _{DS} =0V	-	-	-100	nA
On characteristics						
Drain to Source On-Resistance	R _{DS(ON)}	V _{GS} =-10V,I _D =-10A	-	14	20	mΩ
		V _{GS} =-4.5V,I _D =-10A	-	18	25	mΩ
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} ,I _D =-250μA	-1	-1.6	-2.5	V
Dynamic characteristics						
Gate capacitance	R _g	V _{GS} =0V,V _{DS} =0V ,f=1.0MHz	-	11	-	Ω
Forward Transconductance	g _{fs}	V _{DS} =-10V,I _D =-3A	-	10	-	S
Input Capacitance	C _{iss}	V _{DS} =-20V,V _{GS} =0V f=1.0MHz	-	1280	-	pF
Output Capacitance	C _{oss}		-	175	-	pF
Reverse Transfer Capacitance	C _{rss}		-	132	-	pF
Resistive Switching Characteristics						
Turn-on Delay Time	t _{d(ON)}	V _{GS} =-10V,V _{DS} =-15V, I _D =-10A,R _G =3Ω	-	7	-	ns
Rise Time	t _r		-	1.7	-	ns
Turn-off Delay Time	t _{d(OFF)}		-	38	-	ns
Fall Time	t _f		-	50	-	ns
Total Gate Charge	Q _g	I _D =-10A, V _{DS} =-15V V _{GS} =-10V	-	25	-	nC
Gate to Source Charge	Q _{gs}		-	5.1	-	nC
Gate to Drain("Miller") Charge	Q _{gd}		-	4.5	-	nC
Source-Drain Diode Characteristics						
Continuous Source Current(Body Diode)	I _s		-	-	-20	A
Maximum Pulsed Current(Body Diode)	I _{SM}		-	-	-80	A
Diode Forward Voltage	V _{SD}	I _{SD} =-1A, V _{GS} =0V	-	-0.73	-1.2	V
Reverse Recovery Time	t _{rr}	I _{SD} =-10 A, T _J =25 °C	-	12	-	ns
Reverse Recovery Charge	Q _{rr}		di/dt=100A/μs	-	4.8	-

■ N-MOS TYPICAL CHARACTERISTICS

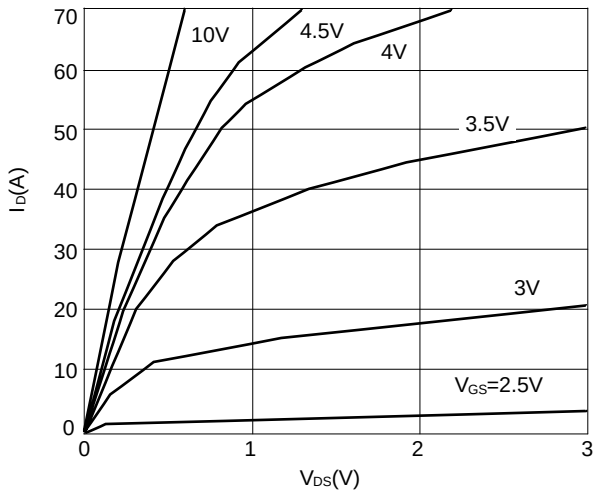


Figure 1: Output Characteristics

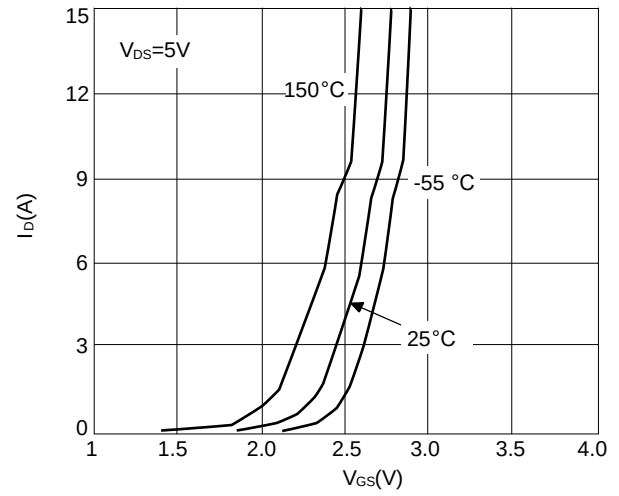


Figure 2: Typical Transfer Characteristics

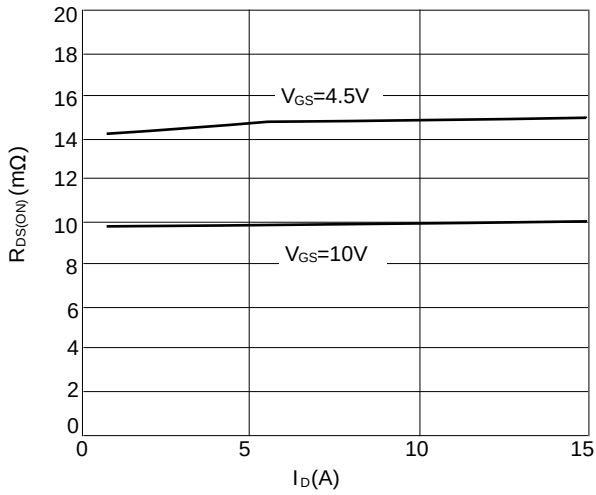


Figure 3: On-Resistance vs. Drain Current

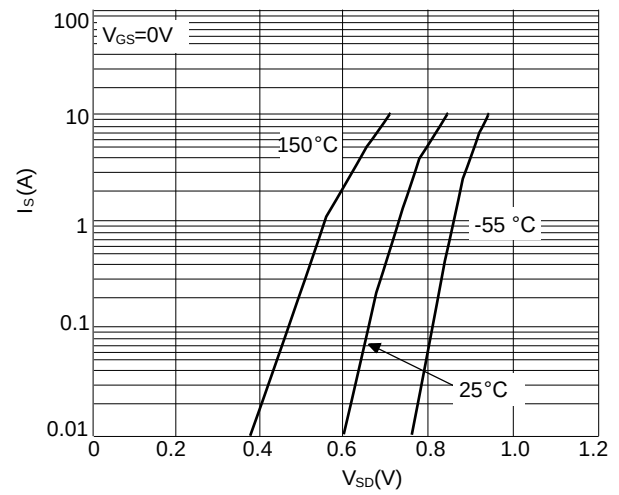


Figure 4: Body Diode Characteristics

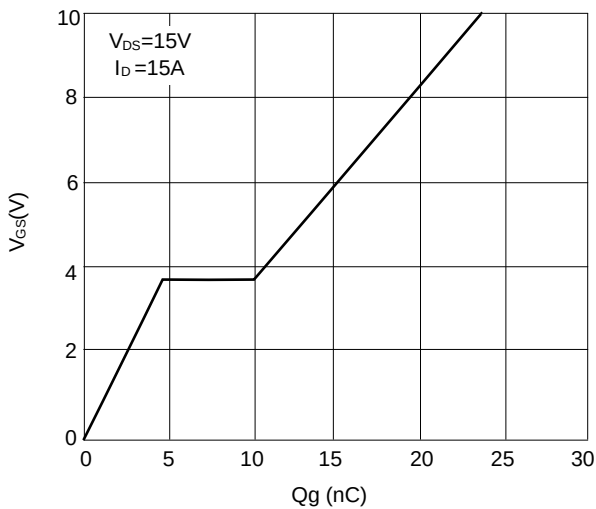


Figure 5: Gate Charge Characteristics

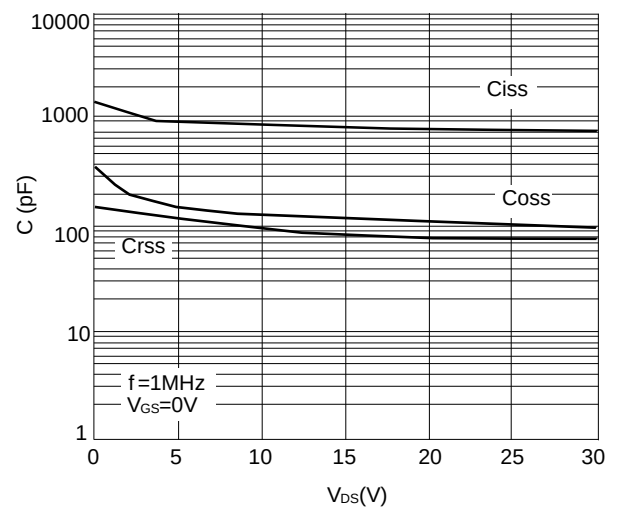


Figure 6: Capacitance Characteristics

■ N-MOS TYPICAL CHARACTERISTICS(Cont.)

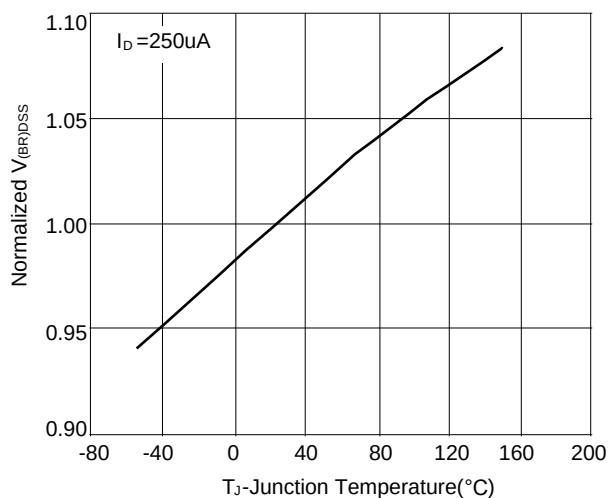


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

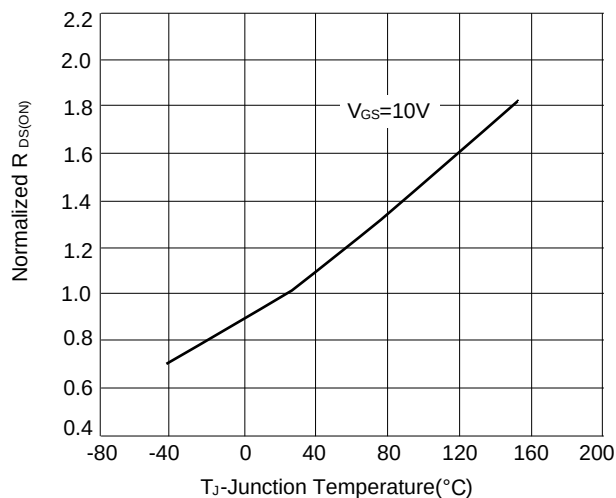


Figure 8: Normalized On-Resistance vs. Junction Temperature

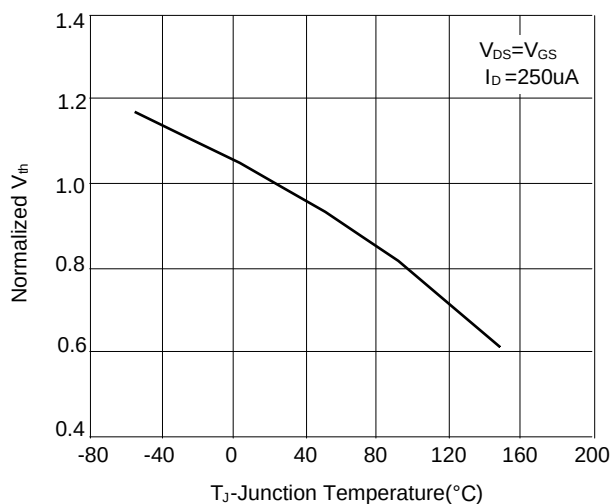


Figure 9: Normalized Threshold Voltage vs. Junction Temperature

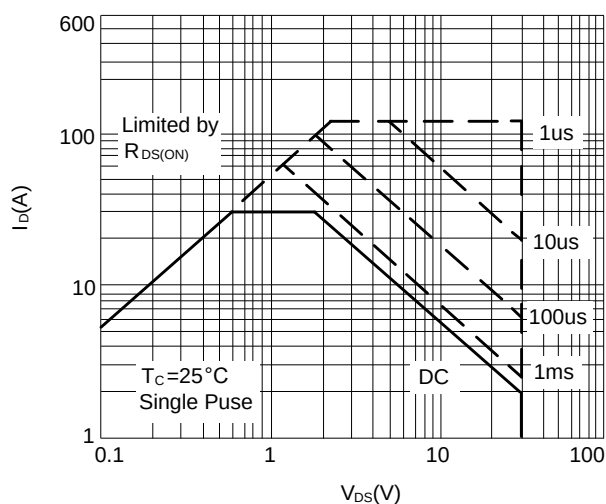


Figure 10: Maximum Safe Operating Area

P-MOS TYPICAL CHARACTERISTICS

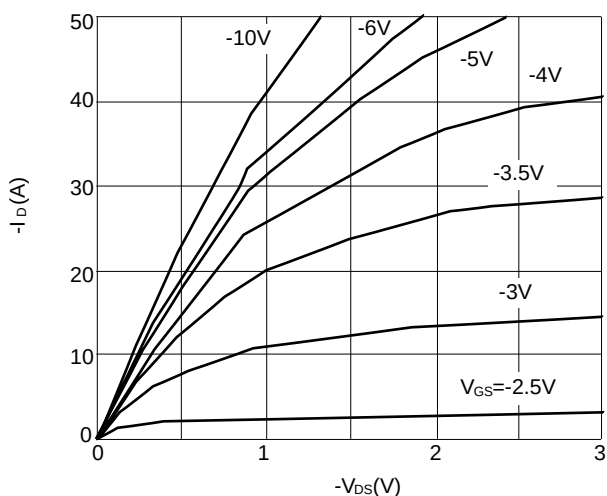


Figure 1: Output Characteristics

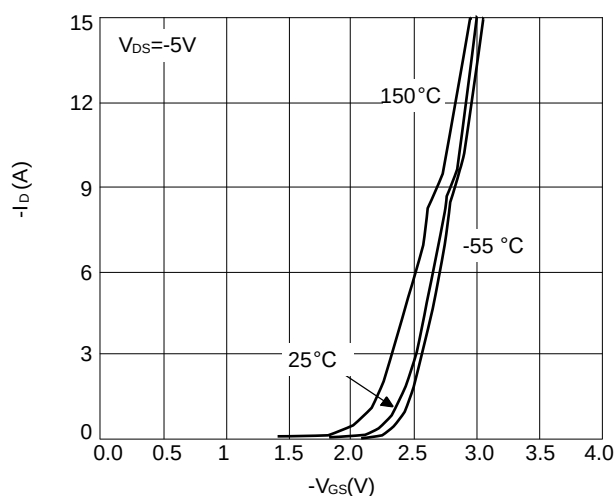


Figure 2: Typical Transfer Characteristics

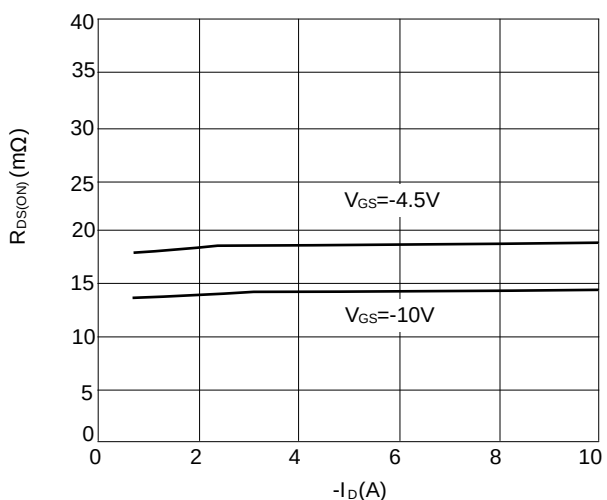


Figure 3: On-Resistance vs. Drain Current

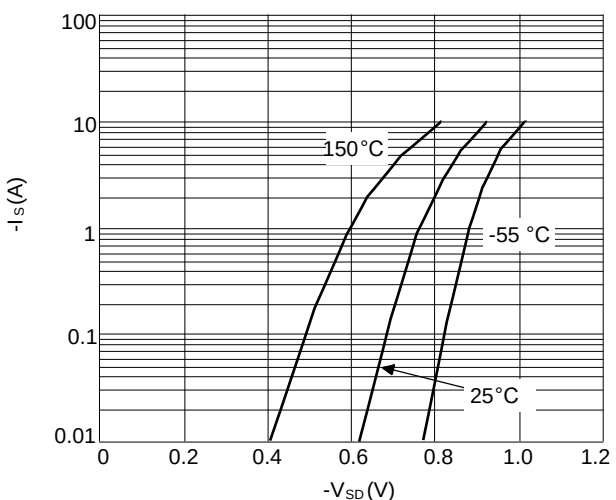


Figure 4: Body Diode Characteristics

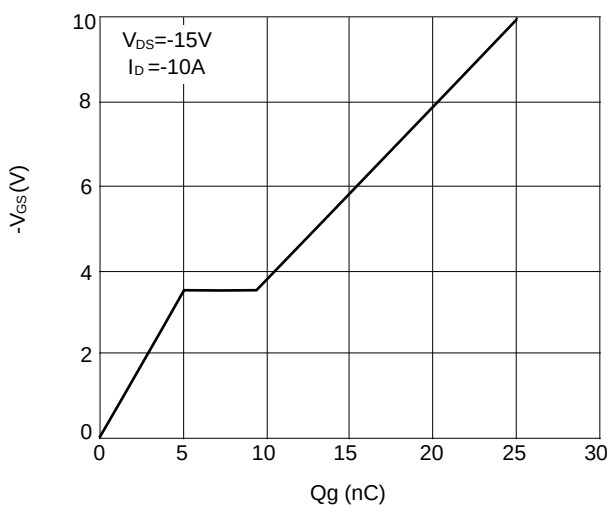


Figure 5: Gate Charge Characteristics

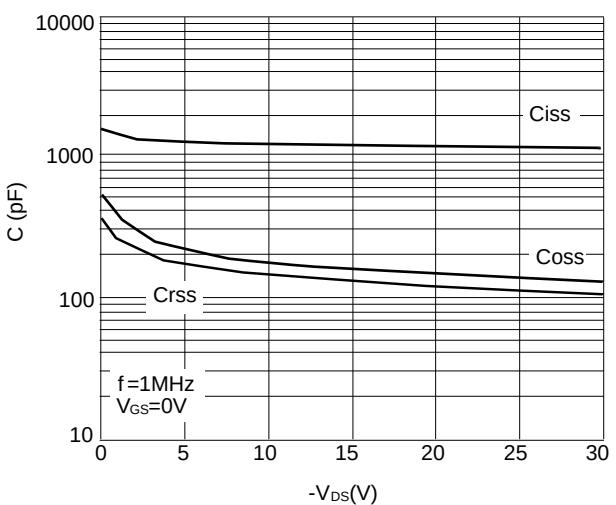


Figure 6: Capacitance Characteristics

■ P-MOS TYPICAL CHARACTERISTICS

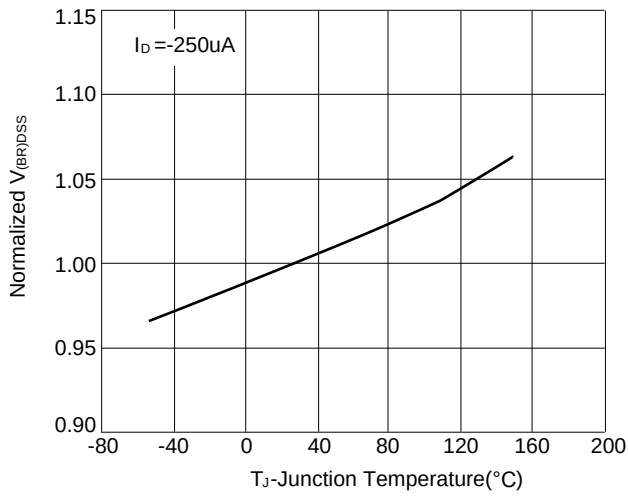


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

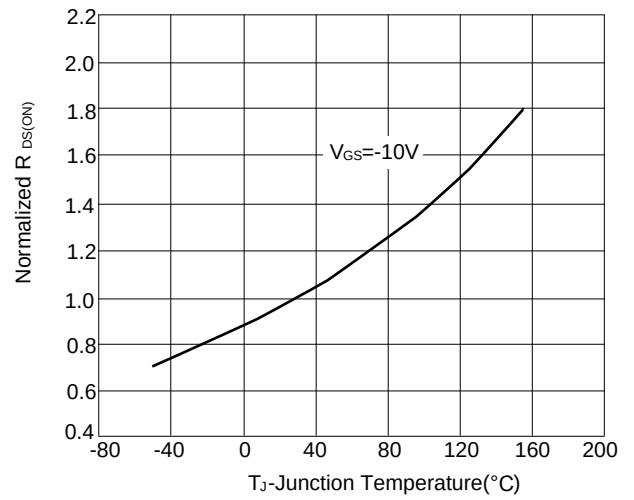


Figure 8: Normalized On-Resistance vs. Junction Temperature

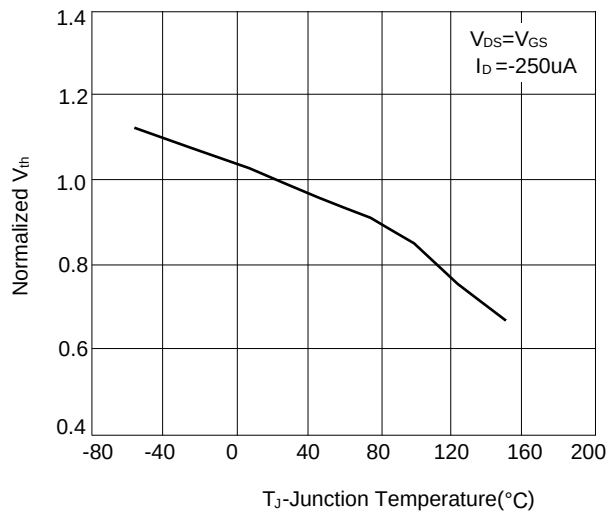


Figure 9: Normalized Threshold Voltage vs. Junction Temperature

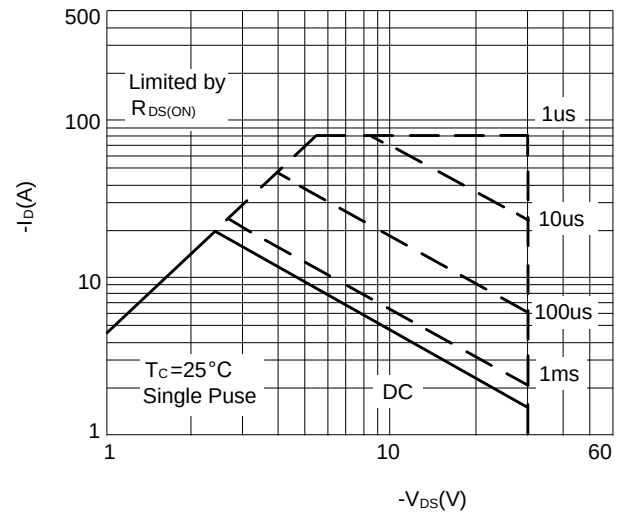
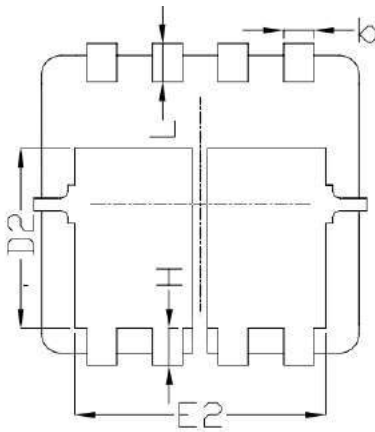
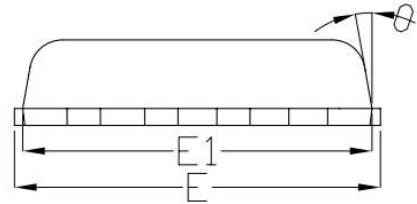
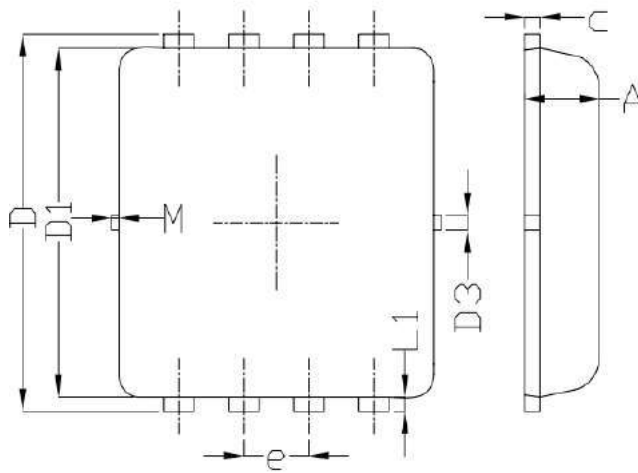


Figure 10: Maximum Safe Operating Area

■ PDFN3X3 Package Mechanical Data



SYMBOL	DIMENSIONAL REOMTS		
	MIN	NOM	MAX
A	0.70	0.75	0.80
b	0.25	0.30	0.35
c	0.10	0.15	0.25
D	3.25	3.35	3.45
D1	3.00	3.10	3.20
D2	1.78	1.88	1.98
D3	---	0.13	---
E	3.20	3.30	3.40
E1	3.00	3.15	3.20
E2	2.39	2.49	2.59
e	0.65BSC		
H	0.30	0.39	0.50
L	0.30	0.40	0.50
L1	---	0.13	---
θ	---	10°	12°
M	*	*	0.15
* Not specified			