■ PRODUCT CHARACTERISTICS

Symbol

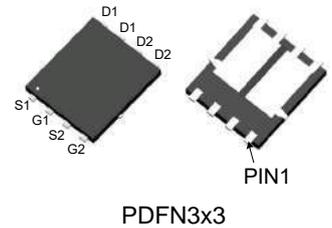| N-CHANNEL MOSFET		P-CHANNEL MOSFET	
V_{DSS}	30V	V_{DSS}	-30V
$R_{DS(ON)}$Typ(@V_{GS}=10V)	10mΩ	$R_{DS(ON)}$Typ(@V_{GS}=-10V)	14mΩ
$R_{DS(ON)}$Typ(@V_{GS}=4.5V)	15mΩ	$R_{DS(ON)}$Typ(@V_{GS}=-4.5V)	18mΩ
I_D	30A	I_D	-20A
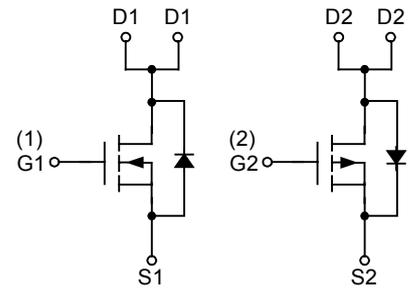
■ APPLICATIONS

* Electronic lamp ballasts based on half bridge

* Load Switching,Quick/Wirelss Charge.

* Motor Driving

■ FEATURE

* Low Gate Charge

* Pb-Free Lead Plating

PDFN3x3

■ ORDER INFORMATION

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

■ ABSOLUTE MAXIMUM RATINGS(T_A=25℃,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}=±10V,T_A=25℃)	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	℃/W
Power Dissipation	P_D	25	15	W
Junction Temperature	T_J	+150		℃
Storage Temperature	T_{STG}	-55~ +150		℃

■ N-MOS ELECTRICAL CHARACTERISTICS (T$_C$=25°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$_D$=15A	-	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$_D$=15A,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$_D$=15A, 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$_{SD}$=15A, T$_J$=25°C dI/dt=100A/μs	-	12	-	ns
Reverse Recovery Charge	Q$_{rr}$		-	6	-	nC

■P-MOS ELECTRICAL CHARACTERISTICS (T_C=25°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}=-10A, T_J=25°C dI/dt=100A/µs	-	12	-	ns
Reverse Recovery Charge	Q_{rr}		-	4.8	-	nC

■ N-MOS TYPICAL CHARACTERISTICS
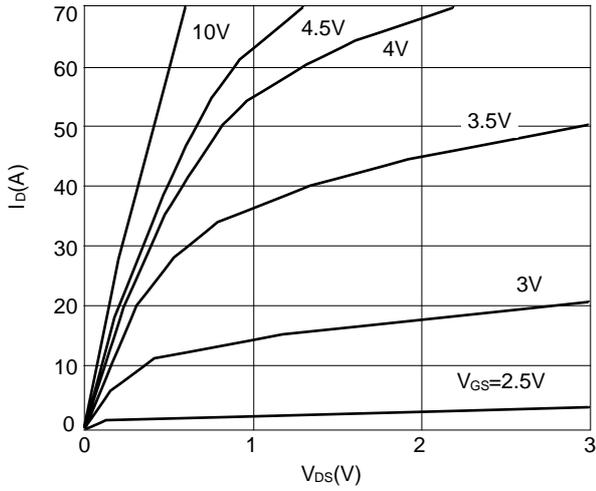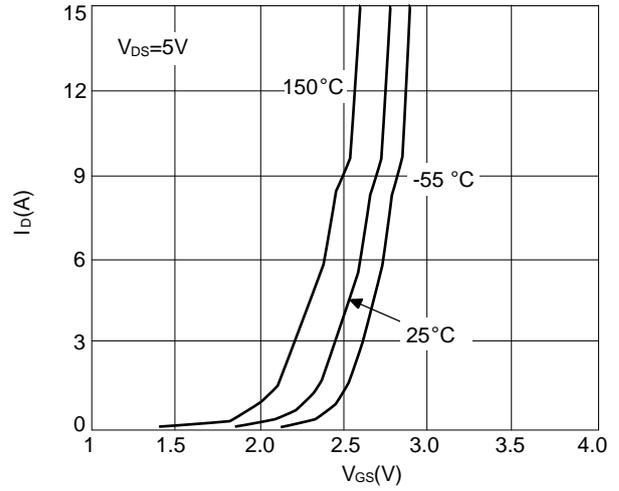
Figure 1: Output Characteristics
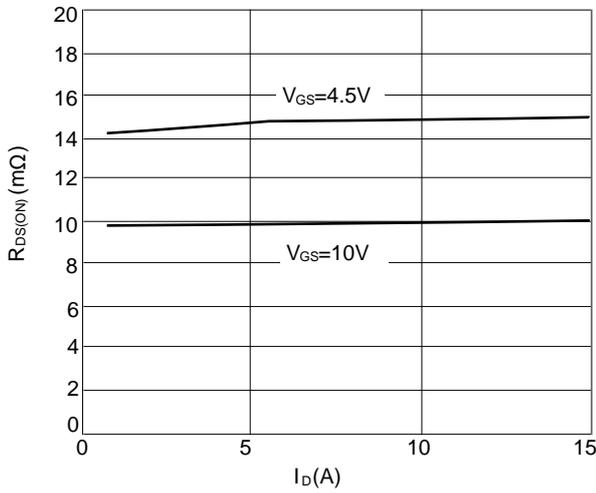
Figure 2: Typical Transfer Characteristics

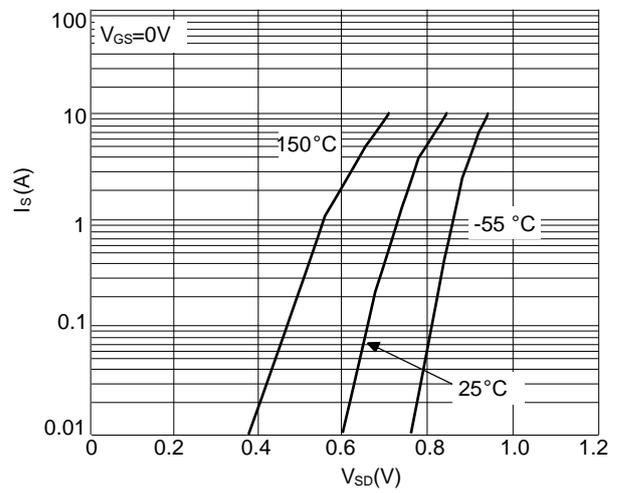Figure 3: On-Resistance vs. Drain Current
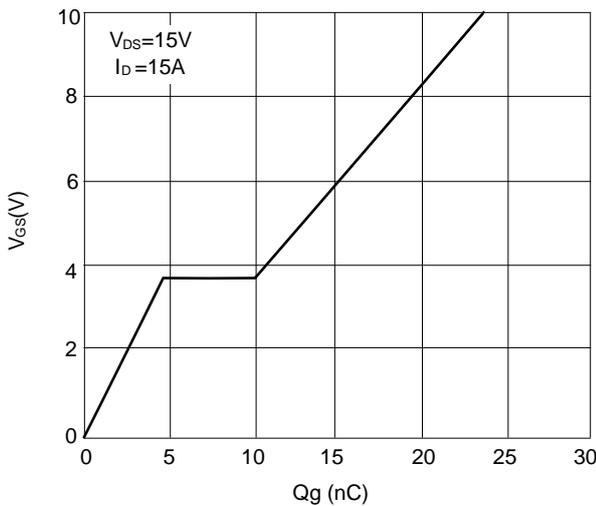
Figure 4: Body Diode Characteristics
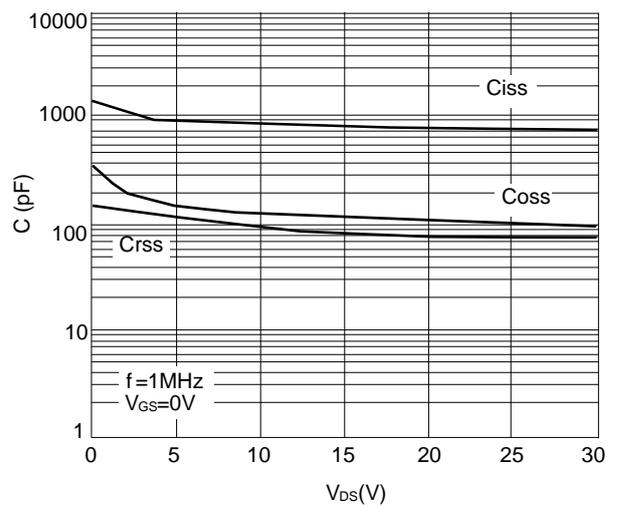
Figure 5: Gate Charge Characteristics

Figure 6: Capacitance Characteristics
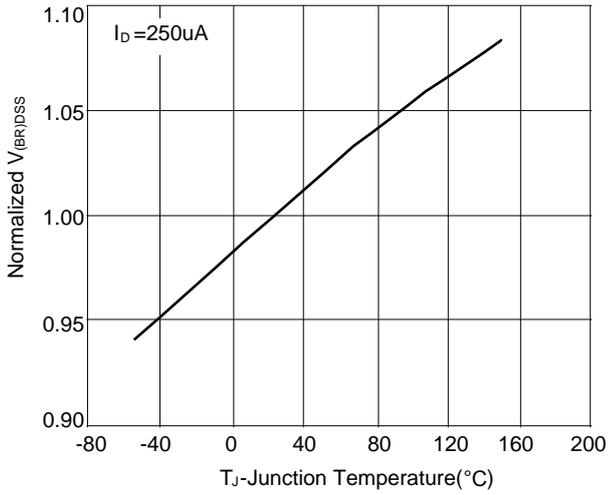
■ N-MOS TYPICAL CHARACTERISTICS(Cont.)

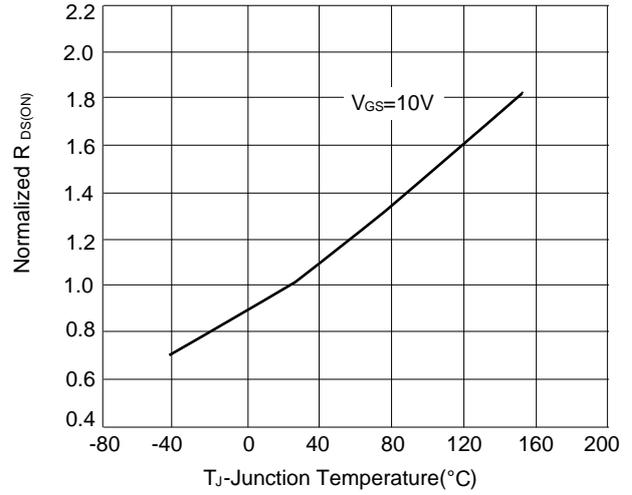Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

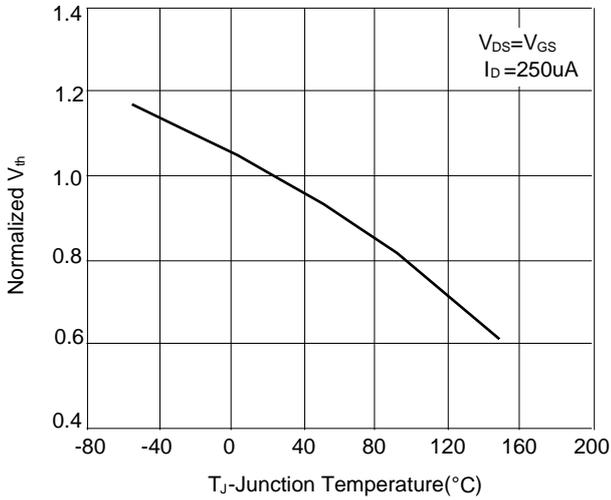Figure 8: Normalized On-Resistance vs. Junction Temperature
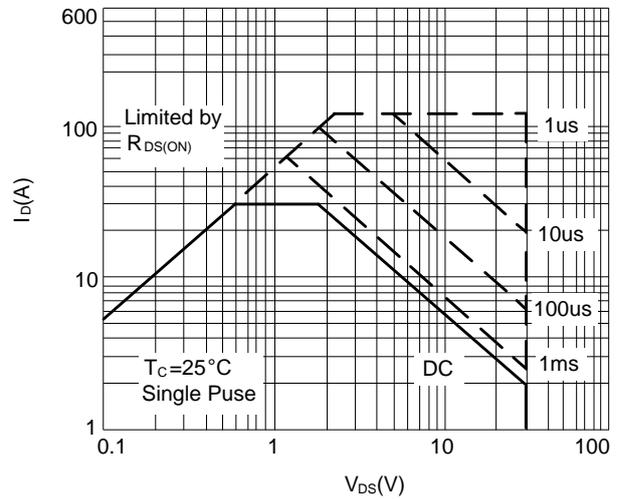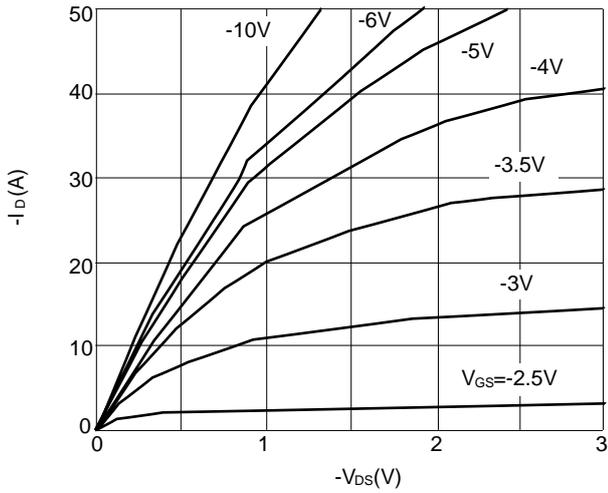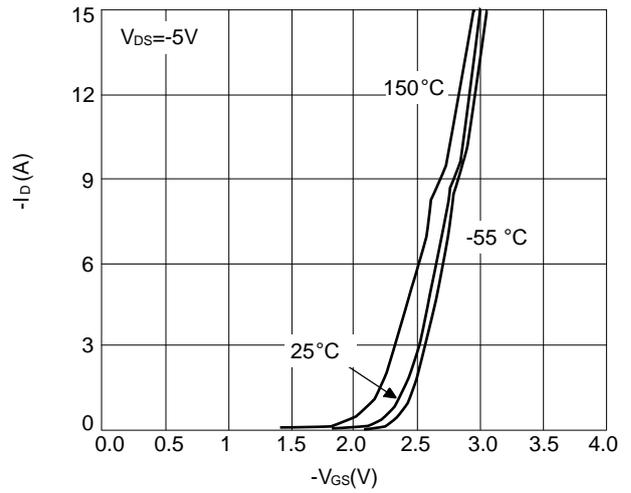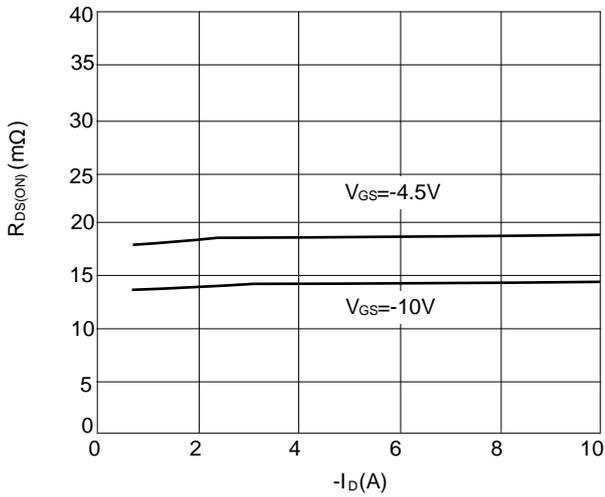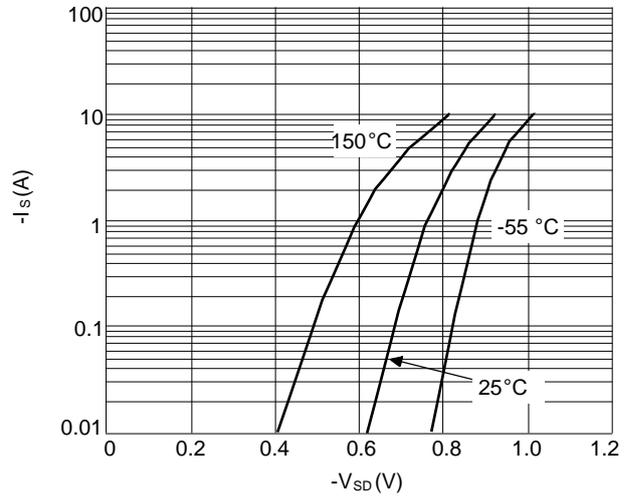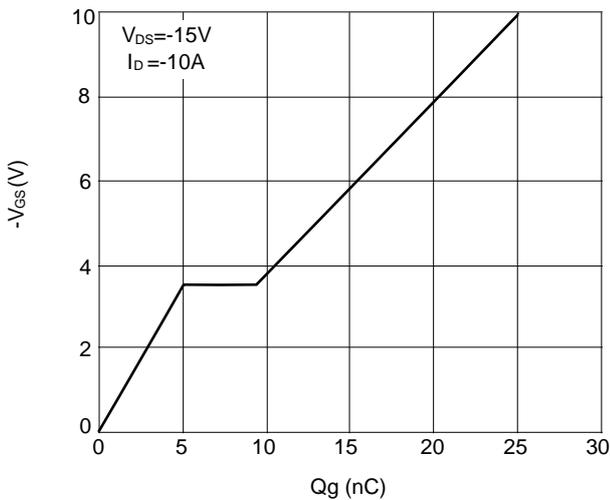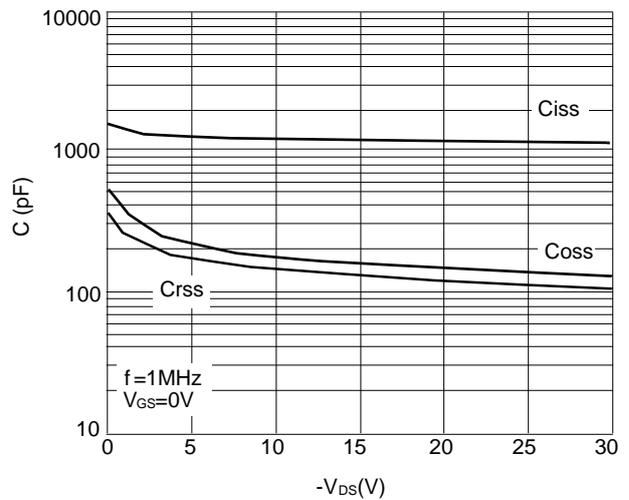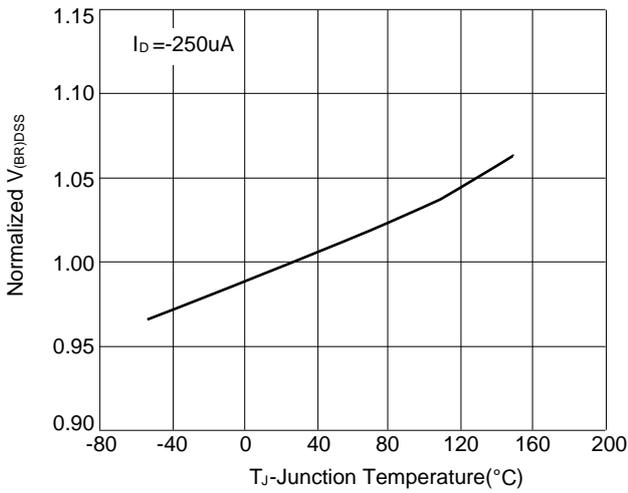

Figure 9: Normalized Threshold Voltage vs. JunctionTemperature

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

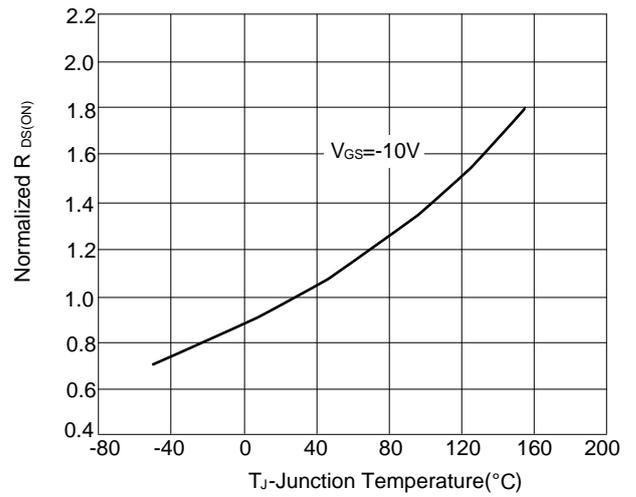Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

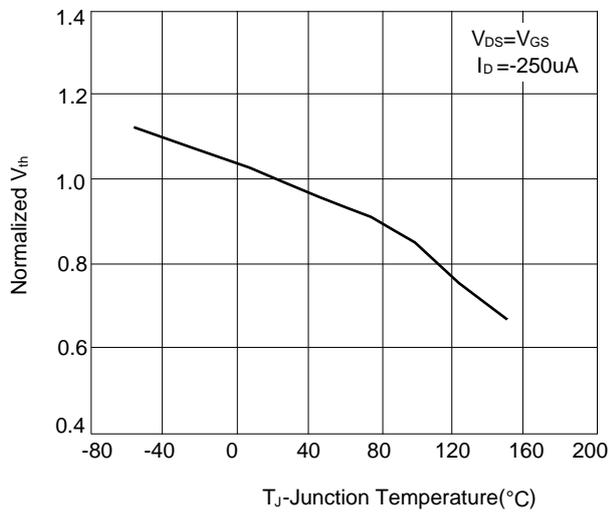Figure 8: Normalized On-Resistance vs. Junction Temperature
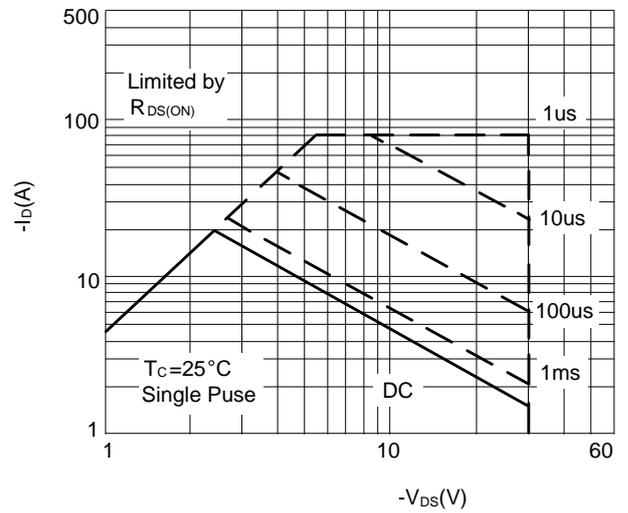

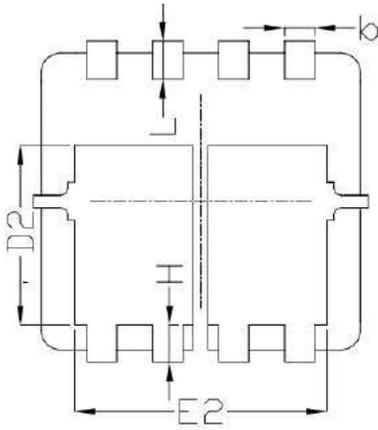Figure 9: Normalized Threshold Voltage vs. Junction Temperature

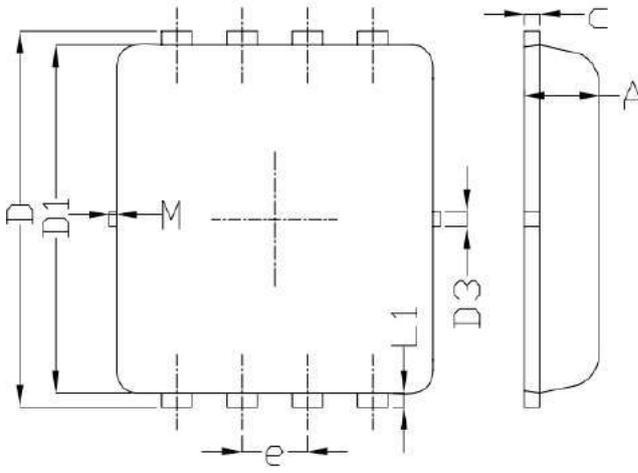Figure 10: Maximum Safe Operating Area

■ PDFN3X3 Package Mechanical Data
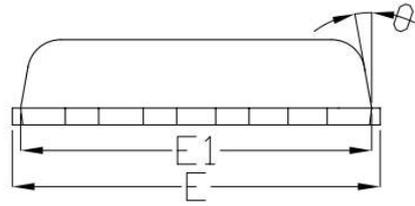
SYMBOL	DIMENSIONAL REQMTS		
	MIN	NOM	MAX
A	0.70	0.75	0.80
b	0.25	0.30	0.35
c	0.10	0.15	0.25
D	3.25	3.35	3.45
D1	3.00	3.10	3.20
D2	1.78	1.88	1.98
D3	---	0.13	---
E	3.20	3.30	3.40
E1	3.00	3.15	3.20
E2	2.39	2.49	2.59
e	0.65BSC		
H	0.30	0.39	0.50
L	0.30	0.40	0.50
L1	---	0.13	---
θ	---	10°	12°
M	*	*	0.15
* Not specified			