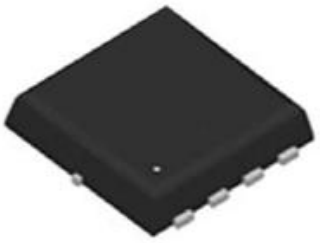
30V N-Ch Power MOSFET

DFN3x3

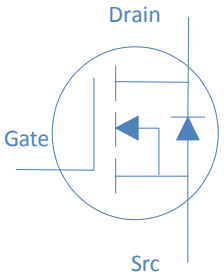


Features:

◇ High Speed Power Switching, Logic Level
◇ Enhanced Avalanche Ruggedness
◇ 100% UIS Tested, 100% Rg Tested
◇ Lead Free, Halogen Free

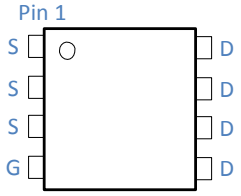
Applications:

◇ Hard Switching and High Speed Circuit
◇ DC/DC in Telecoms and Inductrial



Part Number	Package	Marking
KTM060N03	DFN3*3	TM060N03

V_{DS}		30	V
$R_{DS(on),typ}$	V_{GS}=10V	5	mΩ
$I_{D\ (Sillicon\ Limited)}$		26	A



Absolute Maximum Ratings at T_j=25℃ (unless otherwise specified)

Parameter	Symbol	Conditions	Value	Unit
Continuous Drain Current (Silicon Limited)	I_D	T_C=25℃	26	A
		T_C=100℃	18.5	
Drain to Source Voltage	V_{DS}	-	30	V
Gate to Source Voltage	V_{GS}	-	±20	V
Pulsed Drain Current	I_{DM}	-	104	A
Avalanche Energy, Single Pulse	E_{AS}	L=0.1mH, T_C=25℃	9.8	mJ
Power Dissipation	P_D	T_C=25℃	21	W
Operating and Storage Temperature	T_J, T_{stg}	-	-55 to150	℃

Absolute Maximum Ratings

Parameter	Symbol	Max	Unit
Thermal Resistance Junction-Ambient	$R_{\theta JA}$	50	℃/W
Thermal Resistance Junction-Case	$R_{\theta JC}$	6	℃/W

Electrical Characteristics at T_j=25℃ (unless otherwise specified)

Static Characteristics

Parameter	Symbol	Conditions	Value			Unit
			min	typ	max	
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250μA	30	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{GS}=V_{DS}, I_D=250μA	1	1.5	3	
Zero Gate Voltage Drain Current	I_{DSS}	V_{GS}=0V, V_{DS}=24V, T_j=25℃	-	-	1	μA
		V_{GS}=0V, V_{DS}=20V, T_j=125℃	-	-	25	
Gate to Source Leakage Current	I_{GSS}	V_{GS}=±20V, V_{DS}=0V	-	-	±100	nA
Drain to Source on Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=14A	-	5	6	mΩ
		V_{GS}=4.5V, I_D=10A	-	7.5	9.5	
Transconductance	g_{fs}	V_{DS}=5V, I_D=14A	-	25	-	S
Gate Resistance	R_G	V_{GS}=15mV, V_{DS}=0V, f=1MHz	-	1.2	-	Ω

Dynamic Characteristics

Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=15V, f=1MHz	-	1983	-	pF
Output Capacitance	C_{oss}		-	328	-	
Reverse Transfer Capacitance	C_{rss}		-	287	-	
Total Gate Charge	Q_g(10V)	V_{DD}=15V, I_D=14A, V_{GS}=10V	-	34.6	-	nC
	Q_g(4.5V)			21		
Gate to Source Charge	Q_{gs}		-	4.8	-	
Gate to Drain (Miller) Charge	Q_{gd}		-	9.7	-	
Turn on Delay Time	$t_{d(on)}$	V_{DD}=15V, I_D=1A, V_{GS}=10V, R_G=6Ω,	-	9	-	ns
Rise time	t_r		-	20	-	
Turn off Delay Time	$t_{d(off)}$		-	25	-	
Fall Time	t_f		-	3	-	

Reverse Diode Characteristics

Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_F=4A	-		1.2	V
Reverse Recovery Time	t_{rr}	I_F=4A, dI_F/dt=100A/μs	-	32	-	ns
Reverse Recovery Charge	Q_{rr}		-	12	-	nC

Fig 1. Typical Output Characteristics

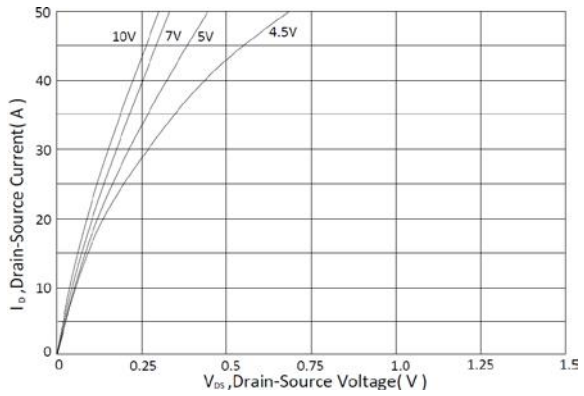


Figure 2. On-Resistance vs. Gate-Source Voltage

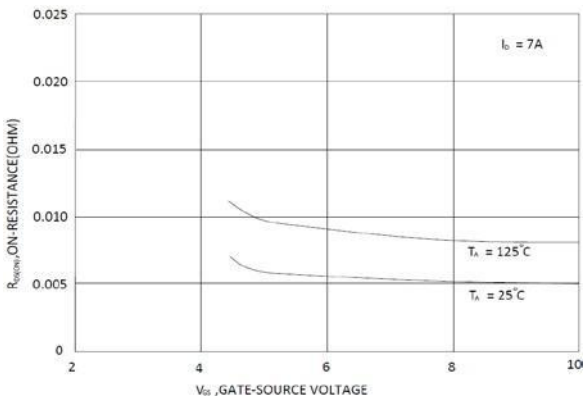


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

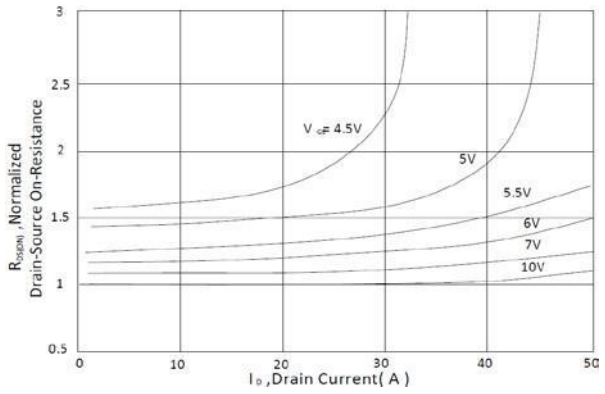


Figure 4. Normalized On-Resistance vs. Junction Temperature

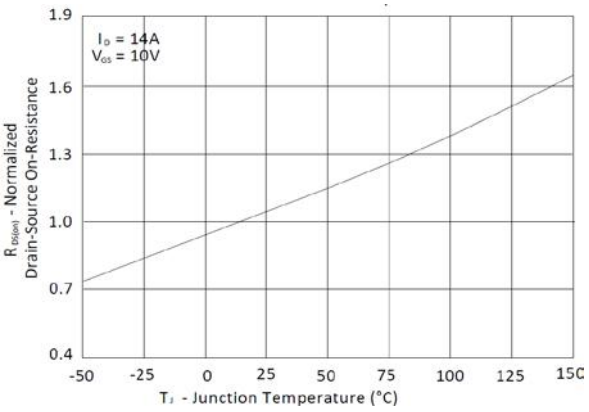


Figure 5. Typical Transfer Characteristics

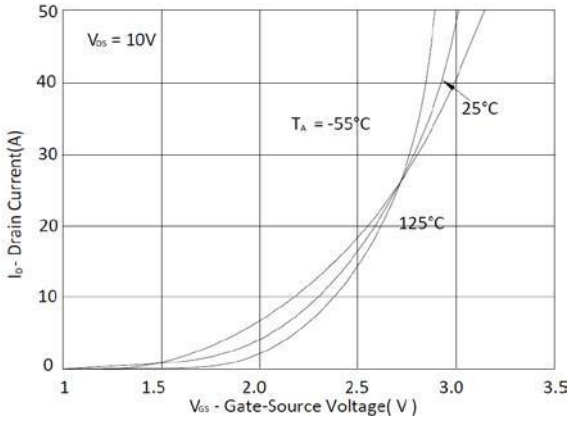


Figure 6. Typical Source-Drain Diode Forward Voltage

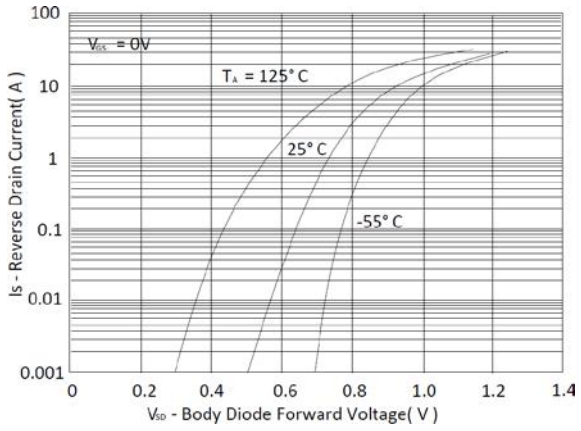


Figure 7. Typical Gate-Charge vs. Gate-to-Source Voltage

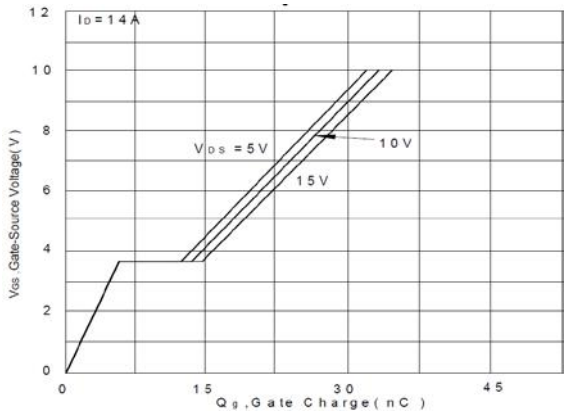


Figure 8. Typical Capacitance vs. Drain-to-Source Voltage

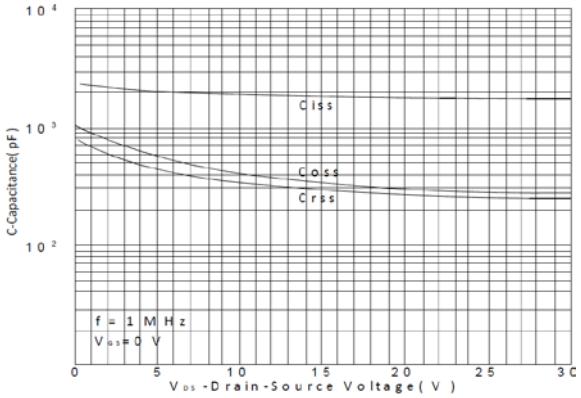


Figure 9. Maximum Safe Operating Area

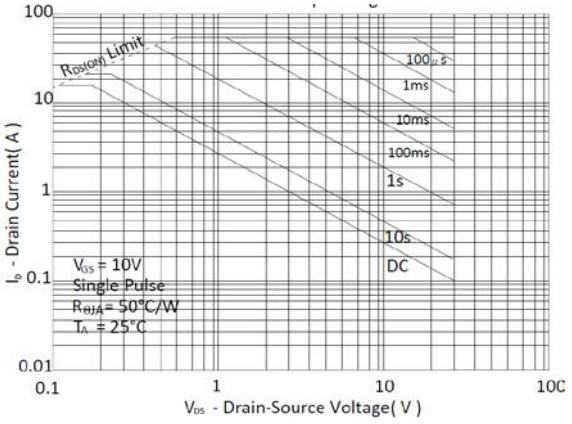


Figure 10. Single Pulse Maximum Power Dissipation

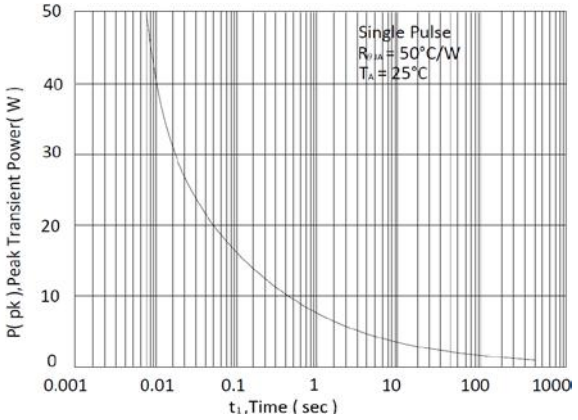
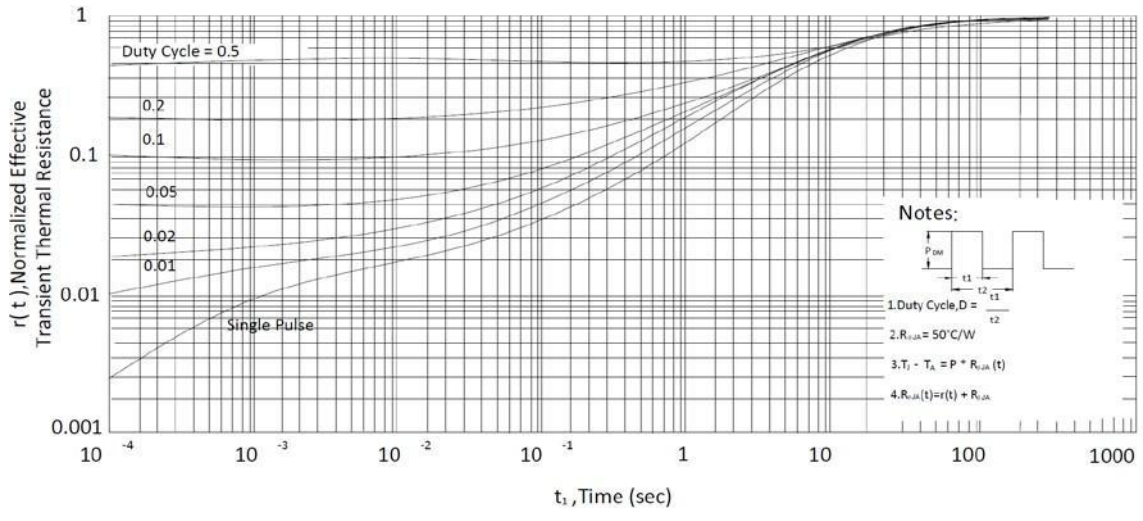
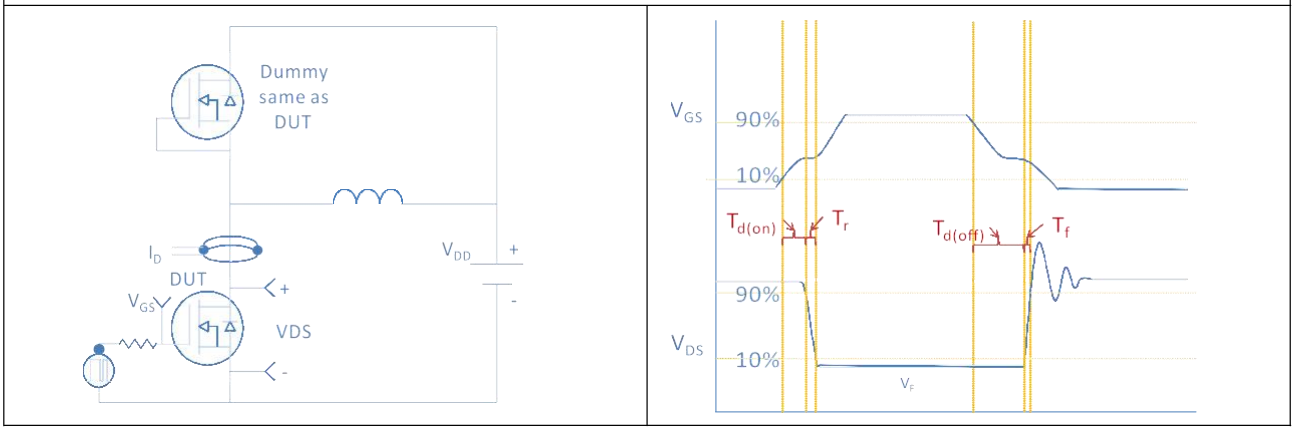


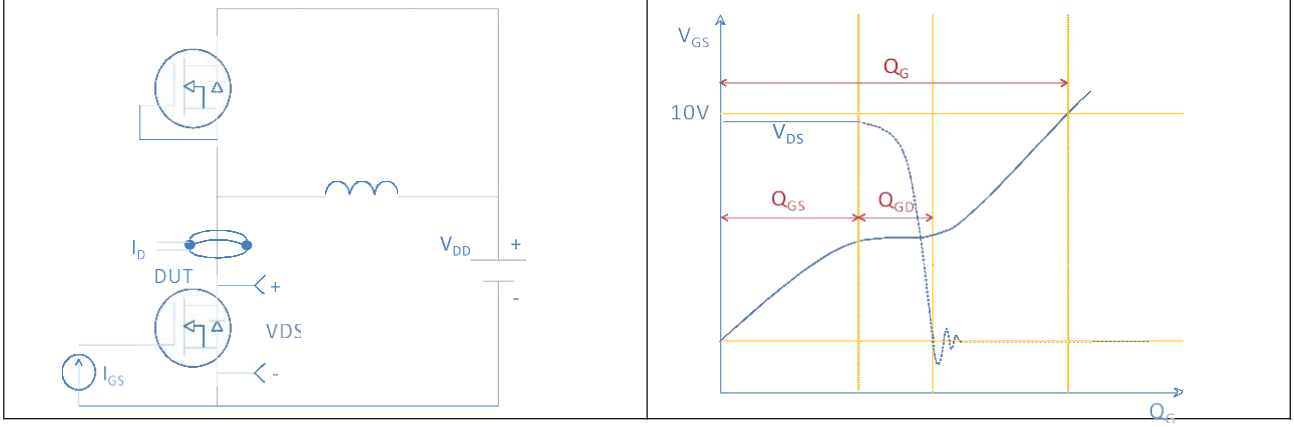
Figure 11. Normalized Maximum Transient Thermal Impedance, Junction-to-Ambient



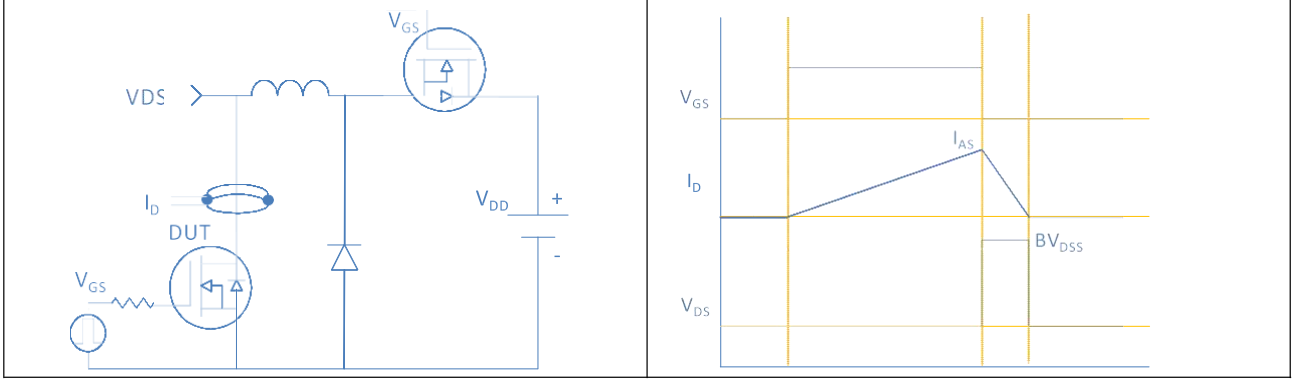
Inductive switching Test



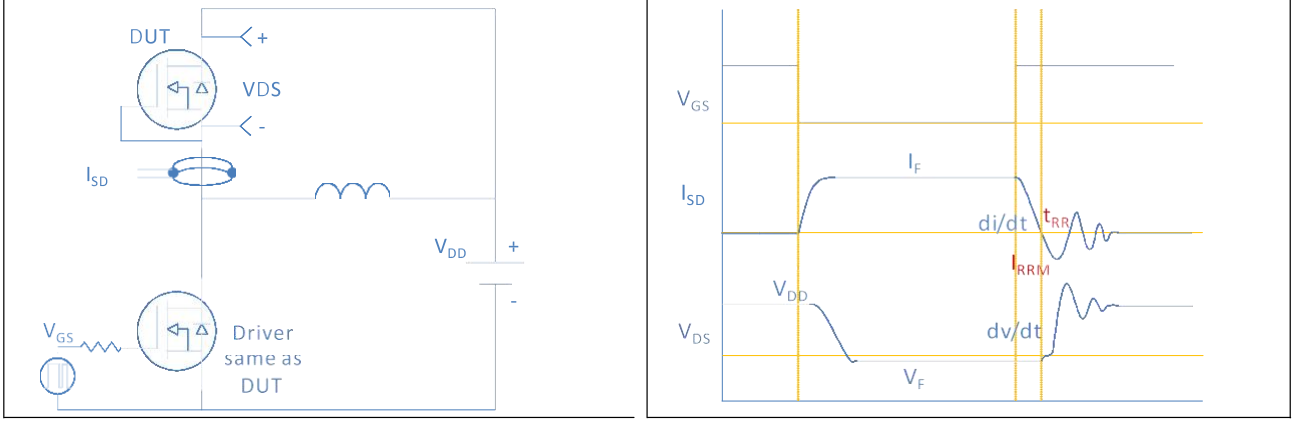
Gate Charge Test



Uclamped Inductive Switching (UIS) Test

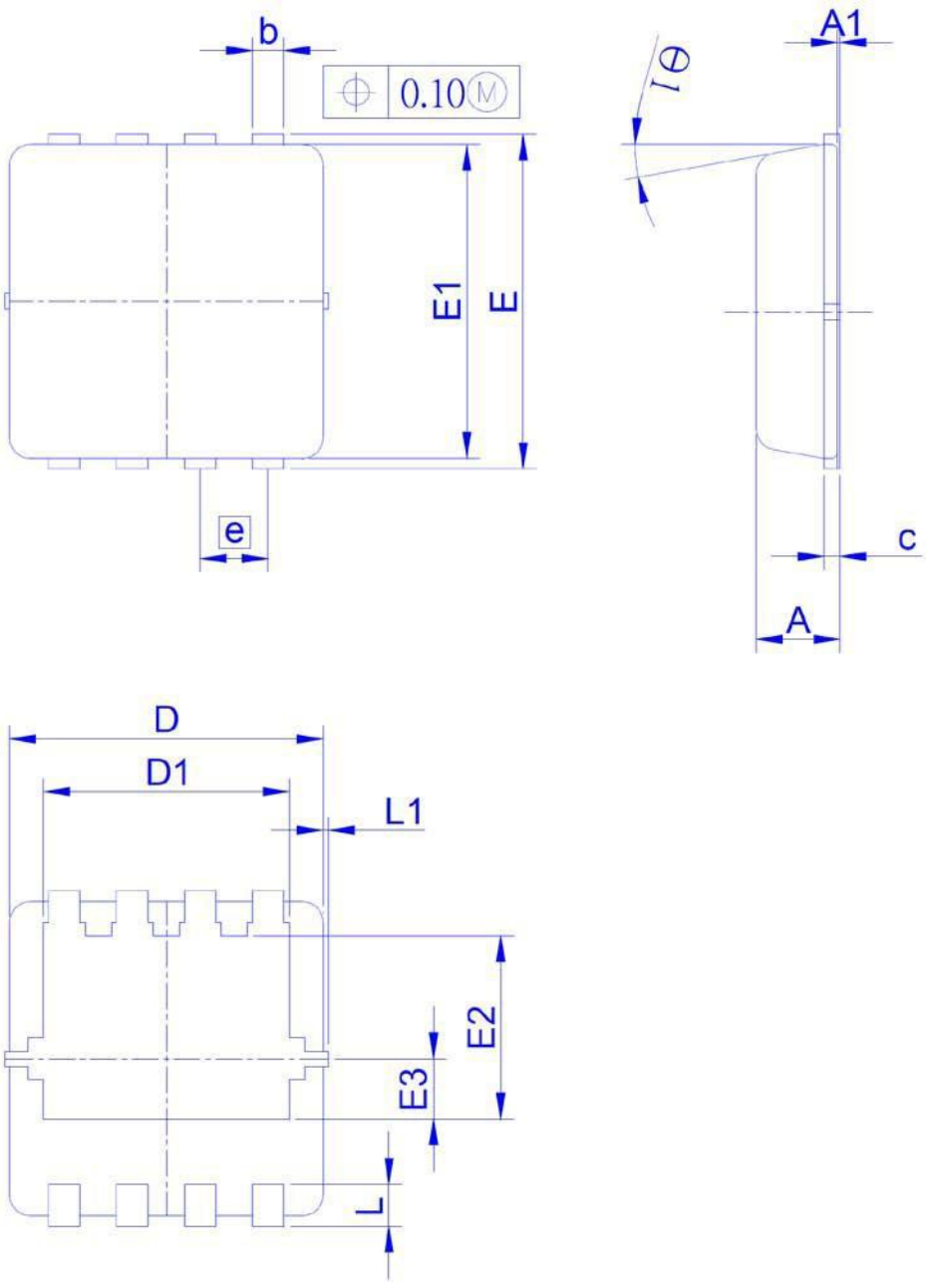


Diode Recovery Test



Package Outline

DFN3x3_P, 8leads



Dimension in mm

Dimension	A	A1	b	c	D	D1	E	E1	E2	E3	e	L	L1	θ1
Min.	0.70	0	0.24	0.10	2.95	2.25	3.15	2.95	1.65			0.30		0°
Typ.	0.80		0.30	0.152	3.00	2.35	3.20	3.00	1.75	0.575	0.65	0.40	0.13	10°
Max.	0.90	0.05	0.37	0.25	3.15	2.45	3.40	3.15	1.96			0.50		12°