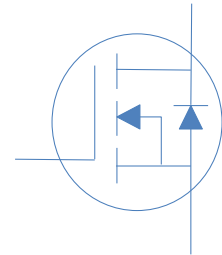
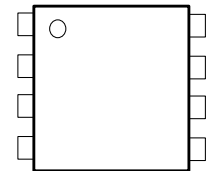


30V N-Ch Power MOSFET

V_{DS}		30	V
$R_{DS(on),typ}$	$V_{GS}=10V$	3.2	$m\Omega$
I_D (Silicon Limited)		32	A



Part Number	Package	Marking
HTM040N03	DFN3*3	TM040N03



Absolute Maximum Ratings at $T_J=25$ (unless otherwise specified)

Parameter	Symbol	Conditions	Value	Unit
Continuous Drain Current (Silicon Limited)	I_D	$T_C=25$	32	A
		$T_C=100$	22	
Drain to Source Voltage	V_{DS}	-	30	V
Gate to Source Voltage	V_{GS}	-	± 20	V
Pulsed Drain Current	I_{DM}	-	128	A
Avalanche Energy, Single Pulse	E_{AS}	$L=0.1mH, T_C=25$	51.2	mJ
Power Dissipation	P_D	$T_C=25$	21	W
Operating and Storage Temperature	T_J, T_{stg}	-	-55 to 150	

Absolute Maximum Ratings

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

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

Static Characteristics

Parameter	Symbol	Conditions	Value			Unit
			min	typ	max	
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	30	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=250\mu A$	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}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
Drain to Source on Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=16A$	-	3.2	4	$m\Omega$
		$V_{GS}=4.5V, I_D=12A$	-	4.9	6.6	
Transconductance			-			S
Gate Resistance			-	2.4		
Input Capacitance	C_{iss}		-	2806	-	
Output Capacitance	C_{oss}	$V_{GS}=0V, V_{DS}=15V, f=1MHz$	-	378	-	pF
			-	202	-	
Total Gate Charge	$Q_g(10V)$ $Q_g(4.5V)$	$V_{DD}=15V, I_D=16A, V_{GS}=10V$	-	42	-	
			-	21	-	nC
Gate to Source Charge	Q_{gs}		-	4.7	-	
Gate to Drain (Miller) Charge	Q_{gd}		-	9.3	-	
Turn on Delay Time	$t_{d(on)}$		-	18	-	
Rise time	t_r	$V_{DD}=15V, I_D=1A, V_{GS}=10V,$	-	15	-	
Turn off Delay Time	$t_{d(off)}$	$R_G=2.7\Omega,$	-	55	-	ns
Fall Time	t_f		-	20	-	
Reverse Diode Characteristics						
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_F=32A$	-		1.3	V
Reverse Recovery Time	t_{rr}	$I_F=32A, di_F/dt=100A/\mu s$	-	30	-	ns
Reverse Recovery Charge	Q_{rr}		-	10	-	nC

Fig 1. Typical Output Characteristics

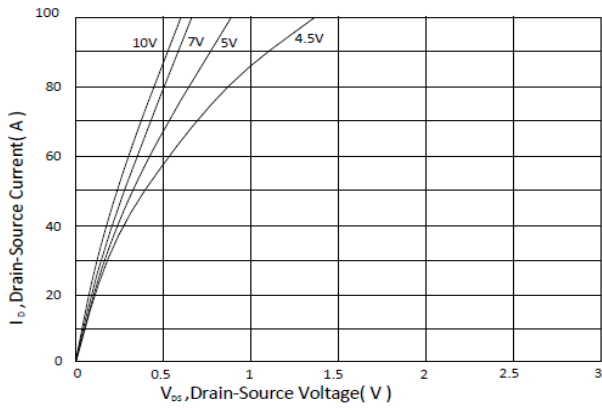


Figure 2. On-Resistance vs. Gate-Source Voltage

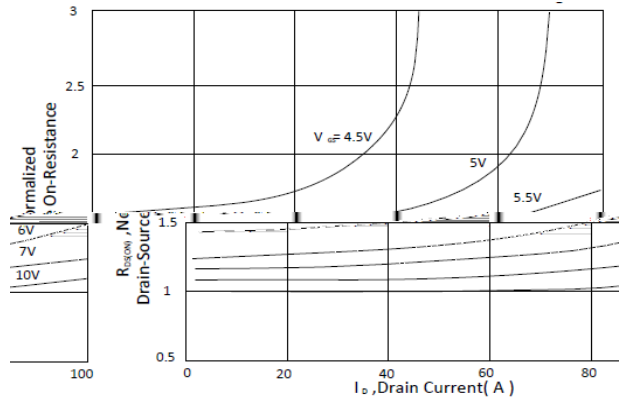


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

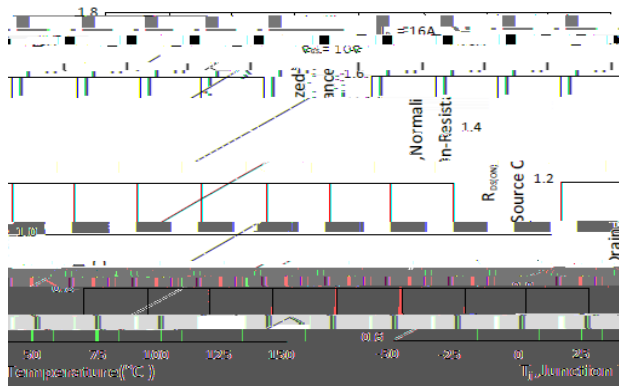


Figure 4. Normalized On-Resistance vs. Junction Temperature

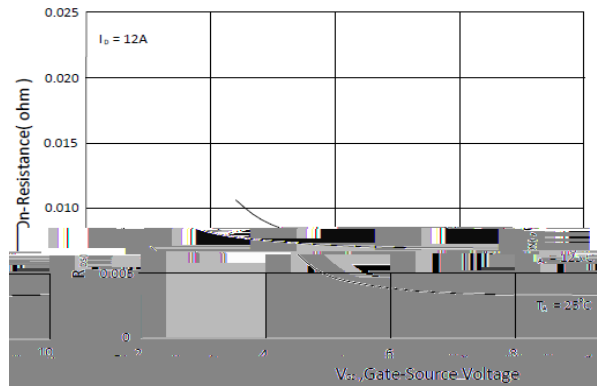


Figure 5. Typical Transfer Characteristics

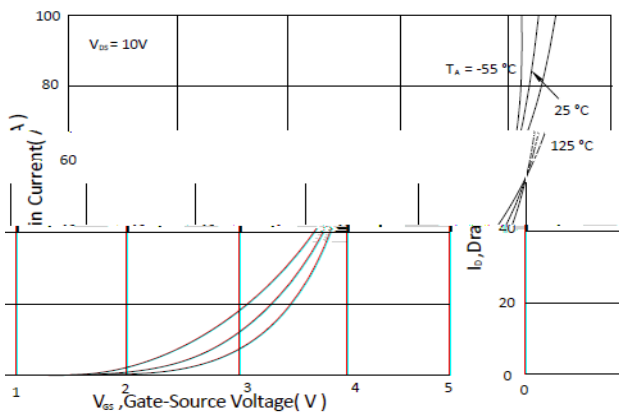


Figure 6. Typical Source-Drain Diode Forward Voltage

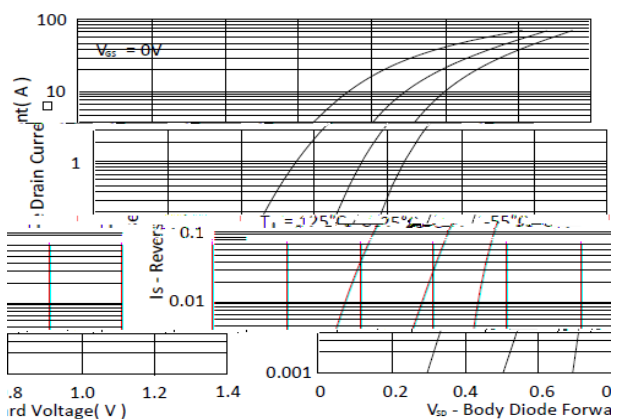


Figure 7. Typical Gate-Charge vs. Gate-to-Source Voltage

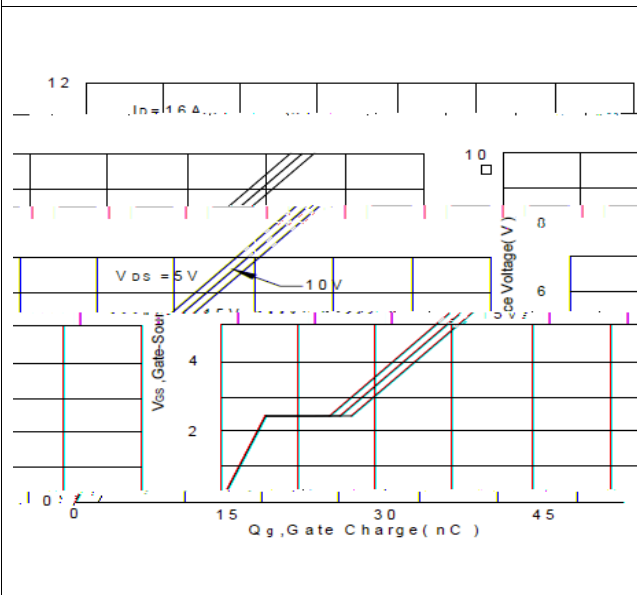


Figure 8. Typical Capacitance vs. Drain-to-Source Voltage



Figure 9. Maximum Safe Operating Area

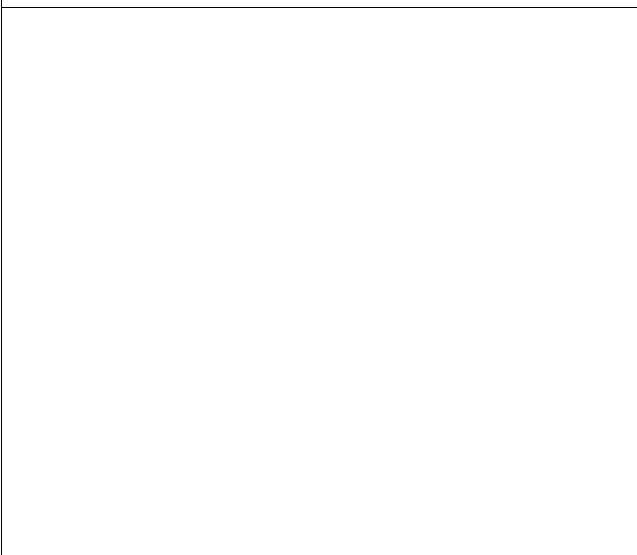


Figure 10. Single Pulse Maximum Power Dissipation

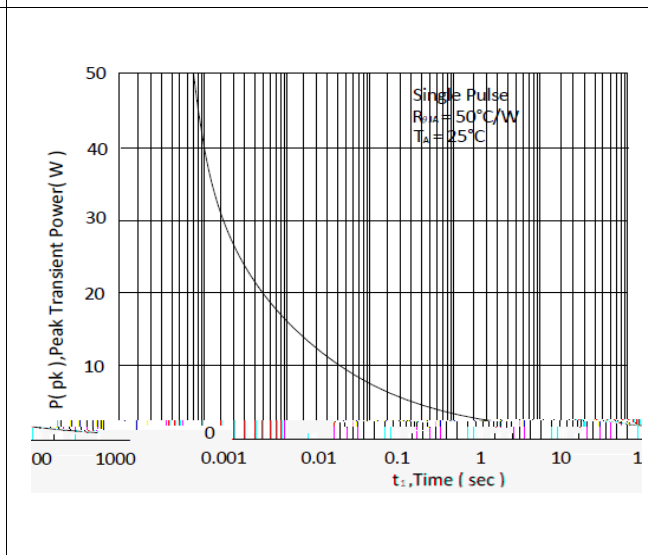
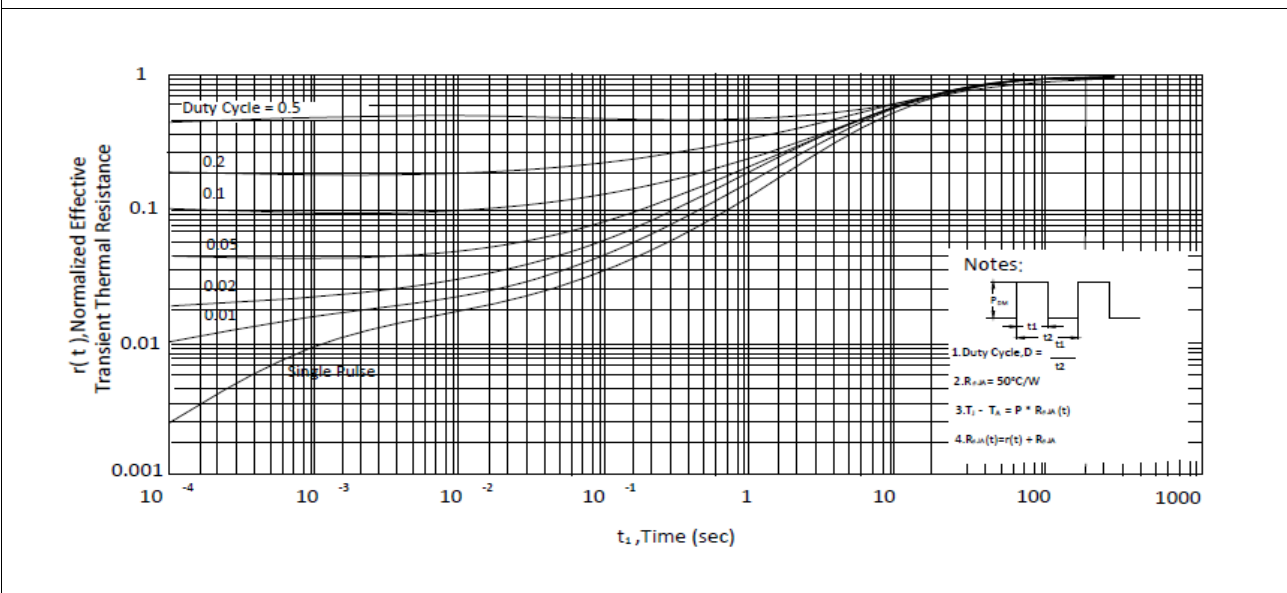
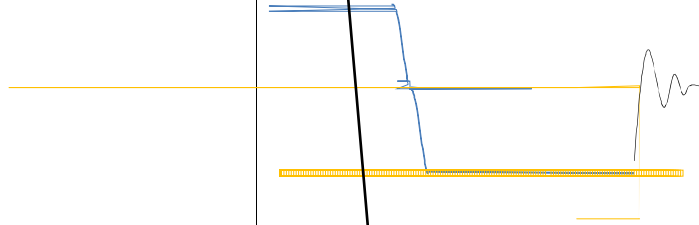


Figure 11. Normalized Maximum Transient Thermal Impedance, Junction-to-Ambient



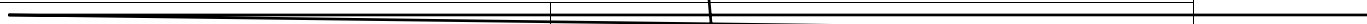
Inductive switching Test



Gate Charge Test



Uclamped Inductive Switching (UIS) Test

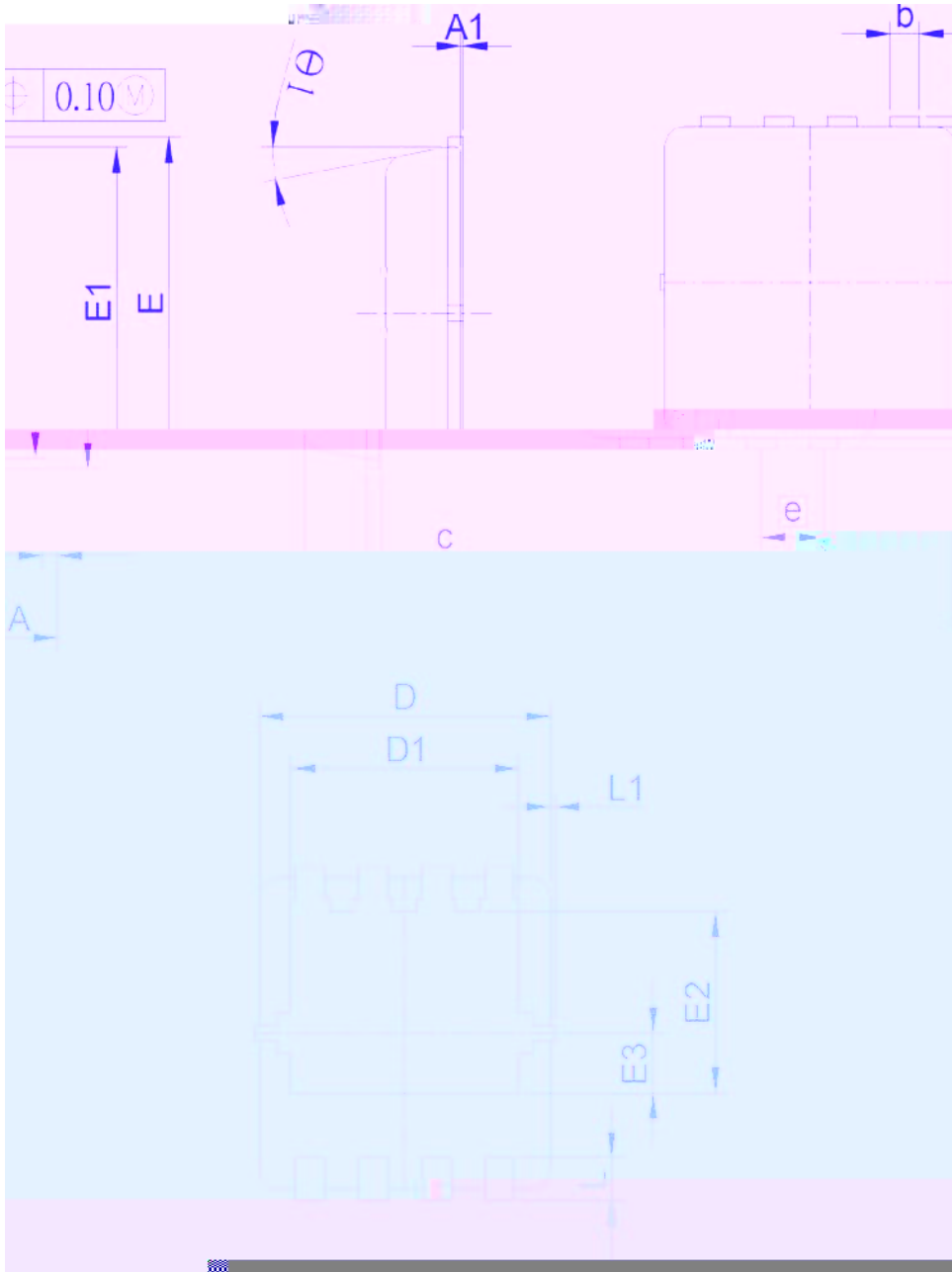


Diode Recovery Test



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
Max.	0.90	0.05	0.37	0.25	2.45	3.40	3.15	1.96			0.50		1.2	Max.