

30V N-Ch Power MOSFET

V_{DS}		30	V
$R_{DS(on),typ}$	$V_{GS}=10V$	3.2	$m\Omega$
I_D (Silicon Limited)		90	A

Part Number	Package	Marking
HTD040N03	TO-252	

Absolute Maximum Ratings at T_J

		T_C	90	
		T_C	55	
Drain to Source Voltage	V_{DS}	-	30	V
Gate to Source Voltage	V_{GS}	-	± 20	V
Pulsed Drain Current	I_{DM}	-	180	A
Avalanche Energy, Single Pulse	E_{AS}	$L=0.1mH, T_C$	140	mJ
Power Dissipation	P_D	T_C	69	W
Operating and Storage Temperature	T_J, T_{stg}	-	-55 to 150	

Absolute Maximum Ratings

Parameter	Symbol	Max	Unit
Thermal Resistance Junction-Ambient	$R_{\theta JA}$	75	
Thermal Resistance Junction-Case	$R_{\theta JC}$	1.8	

Characteristics at T_j

Parameter	Value			Unit
	min	typ	max	
Drain to Source	30	-	-	V
Gate Threshold	1	1.5	3	
Zero Gate Volt	-	-	1	μA
	-	-	25	
Gate to Source	-	-	±100	nA
Drain to Source	-	3.2	4	mΩ
	-	4.9	6.6	
Transconductance	-	25	-	S
Gate Resistance	-	1.2	-	Ω

Dynamic Character

Input Capacitance	-	3570	-	pF
Output Capacitance	-	548	-	
	-	448	-	
Total Gate Charge	-	59	-	nC
	-	25	-	
	-	7.2	-	
	-	12.7	-	
Turn on Delay Time	-	18	-	ns
Rise time	-	12	-	
	-	55	-	
Fall Time	-	15	-	

Reverse Diode Charac

Diode Forward Voltage	-		1.3	V
Reverse Recovery Time	-	30	-	ns
Reverse Recovery Charge	-	10	-	nC

Fig 1. Typical Output Characteristics

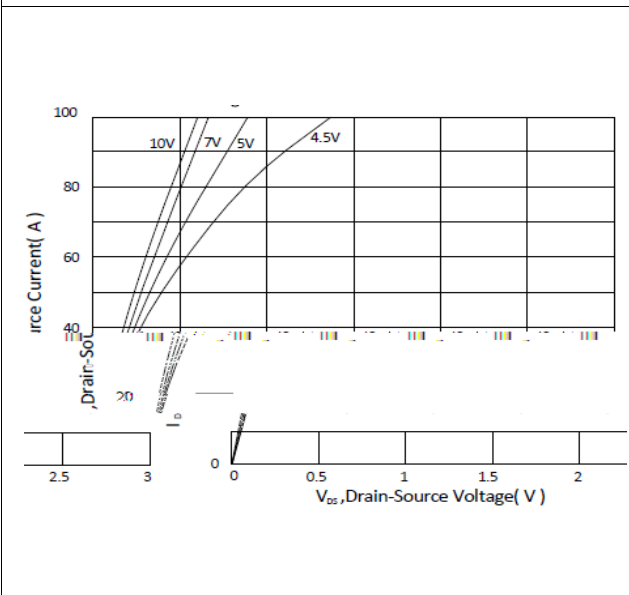


Figure 2. On-Resistance vs. Gate-Source Voltage

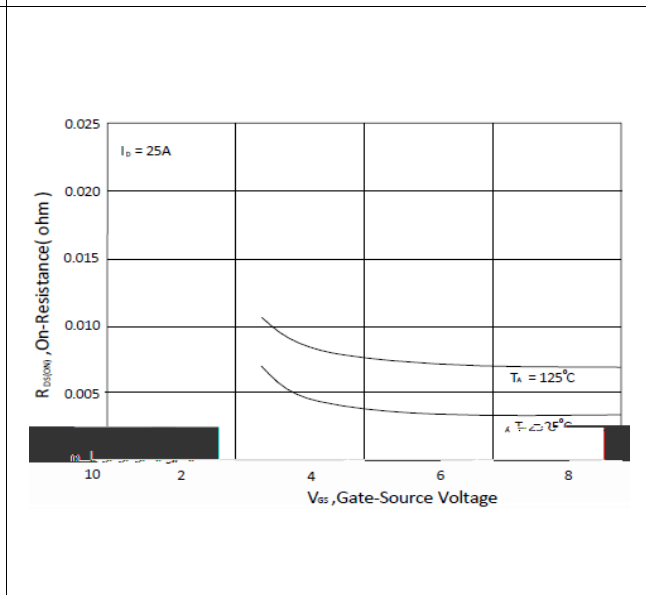


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

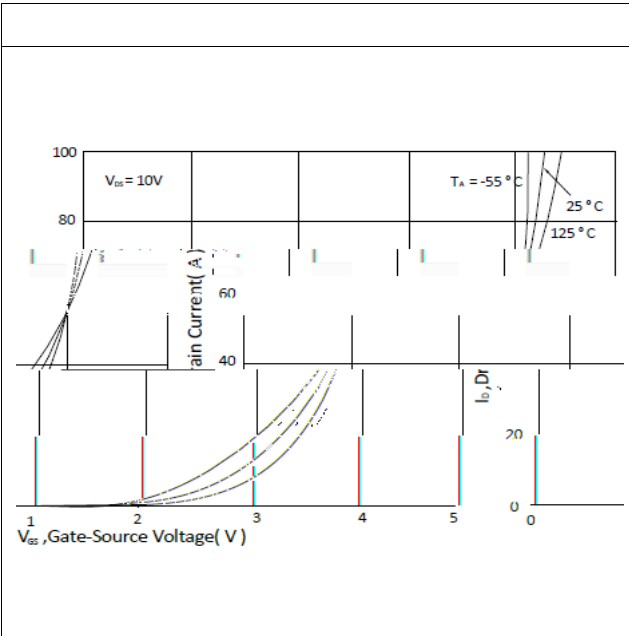
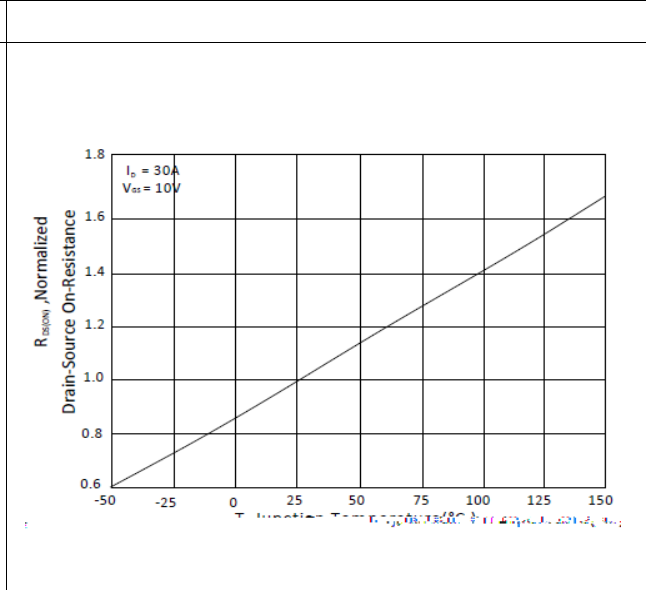
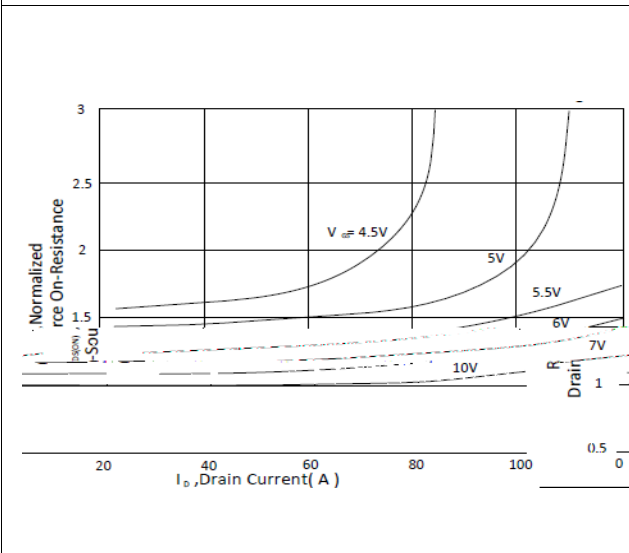


Figure 6. Typical Source-Drain Diode Forward Voltage

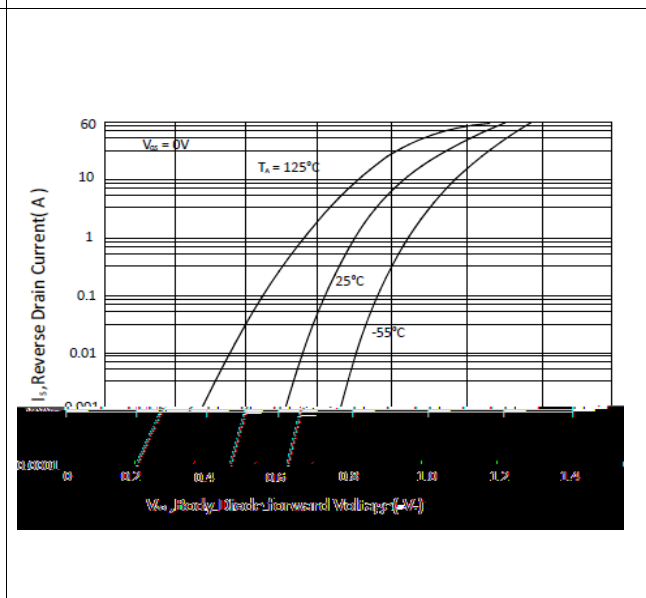


Figure 7. Typical Gate-Charge vs. Gate-to-Source Voltage

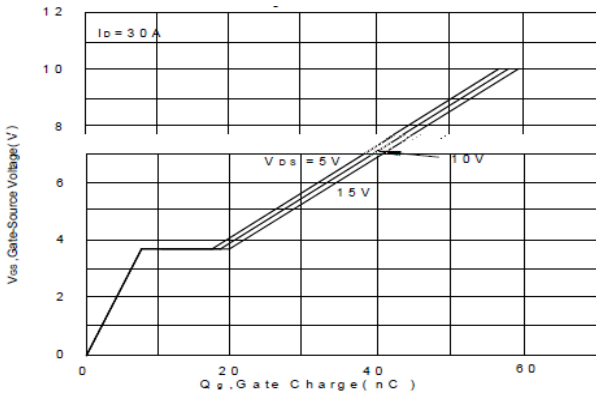


Figure 8. Typical Capacitance vs. Drain-to-Source Voltage

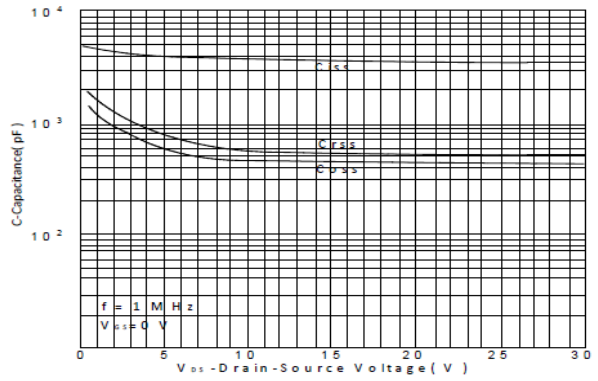
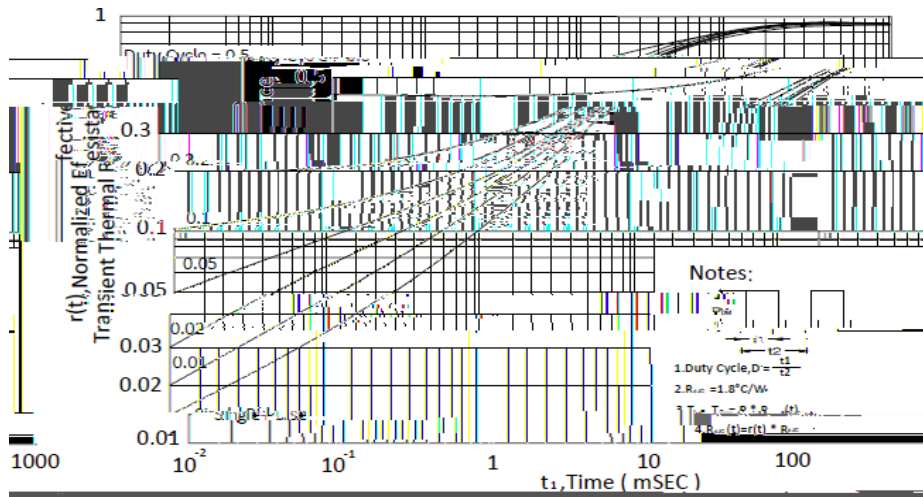
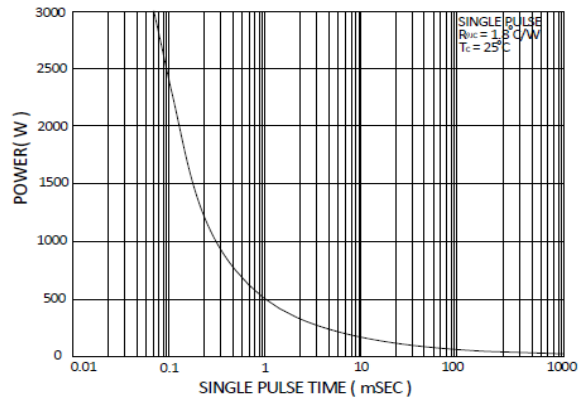
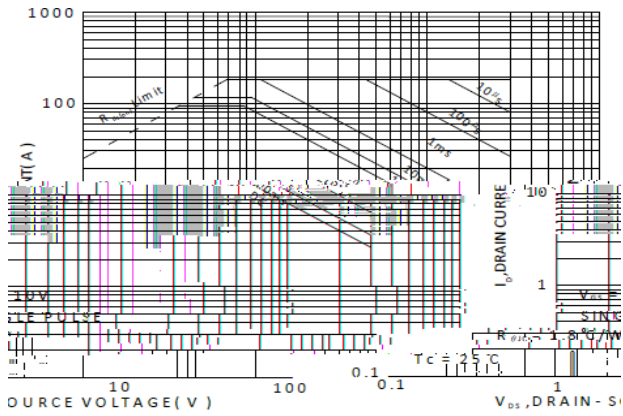
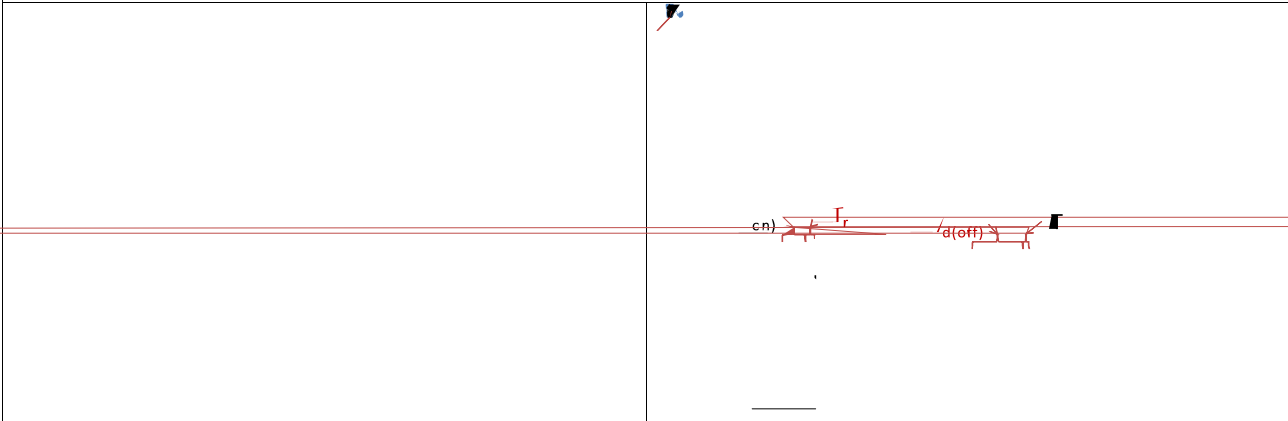


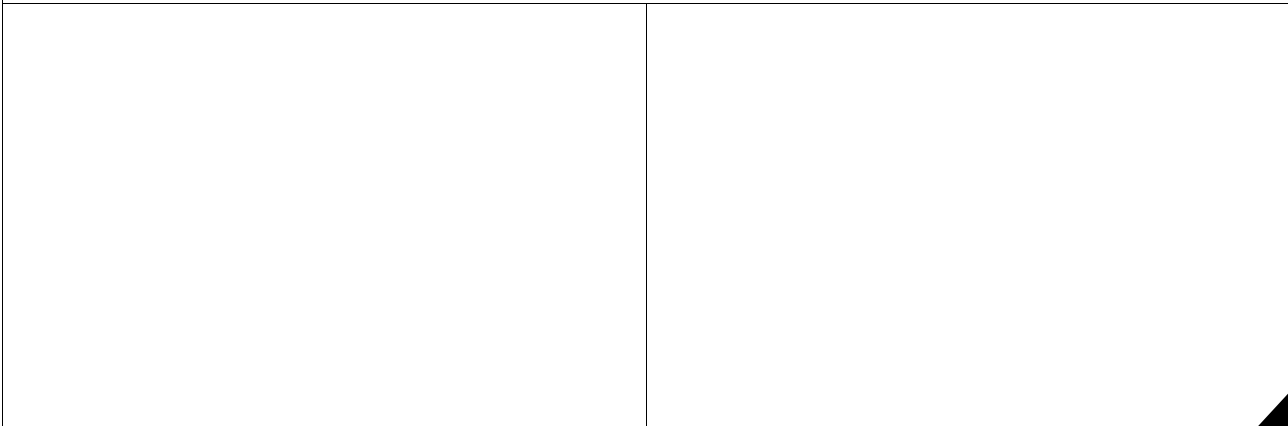
Figure 10. Single Pulse Maximum Power Dissipation



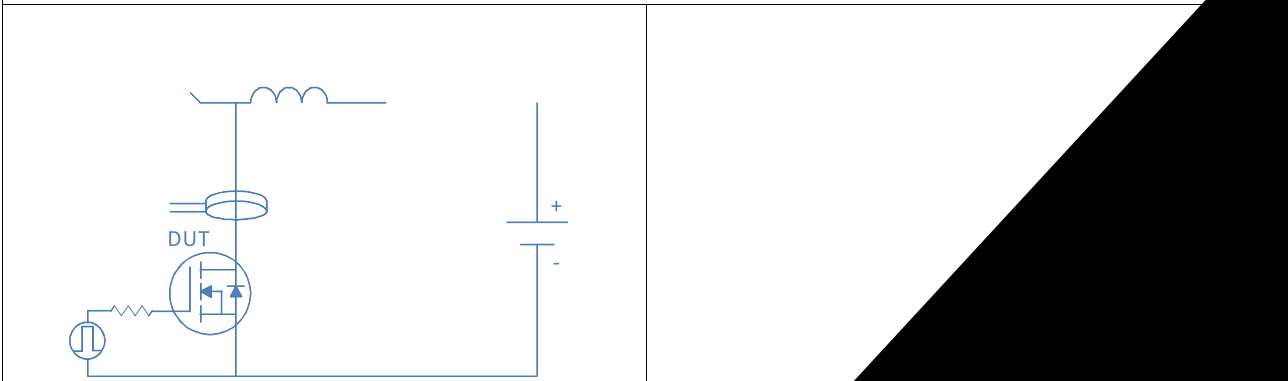
Inductive switching Test



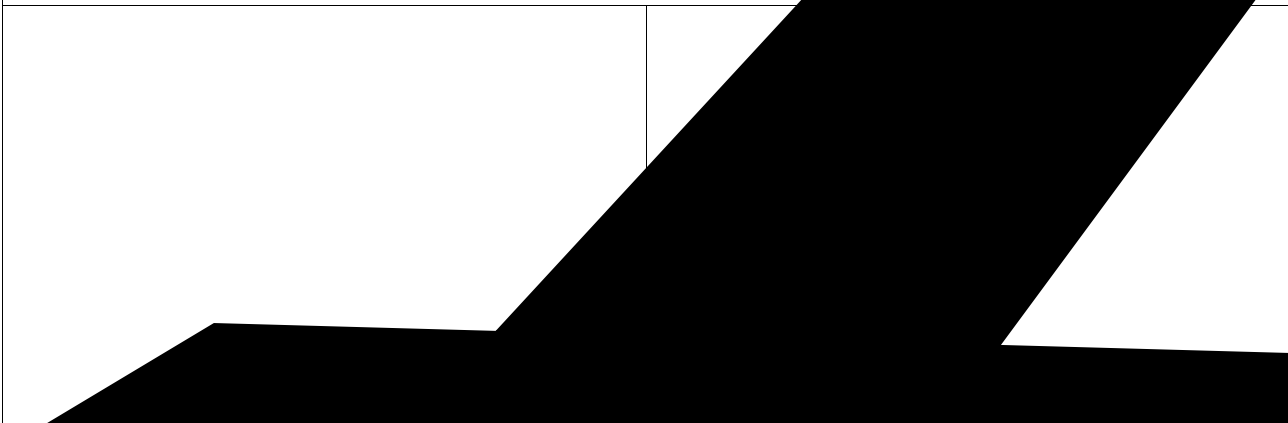
Gate Charge Test



Uclamped Inductive Switching (UIS) Test

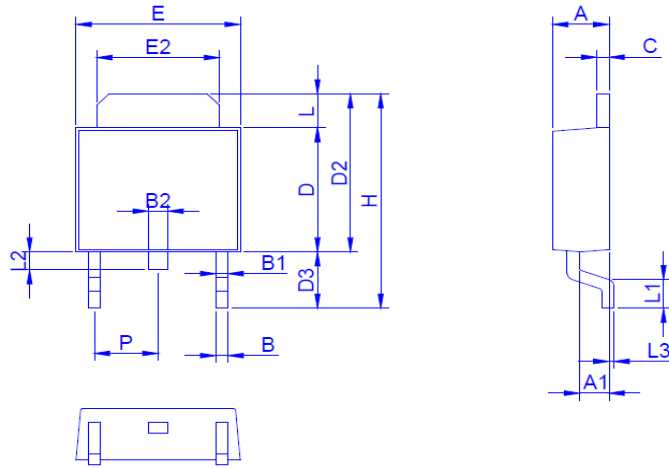


Diode Recovery Test



Package Outline

TO-252, 3leads



Dimension	A	A1	B	B1	B2	C	D	D2	D3	E	E2	H	L	L1	L2	L3	P
0.60	0.40	5.30	6.70	2.20	6.40	4.80	9.20	0.89	0.90	0.50	0.00	2.10	Min.	2.10	0.95	0.30	0.40
1.00	0.60	6.20	7.30	3.00	6.70	5.45	10.15	1.70	1.65	1.10	0.70	3.50	Max.	2.50	1.30	0.85	0.90