

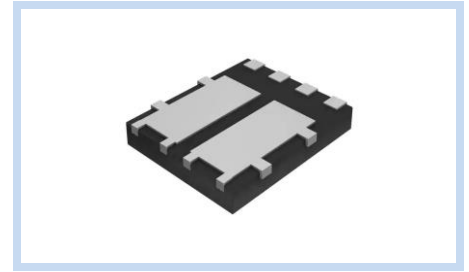
Dual N-Channel MOSFET 100V 28A DFN5X6

MFT102N28P56

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FEATURE

- Operating Temperature: -55 ~ +150 °C
- Low Profile Construction Design
- High power and current handling capability
- Fast Switching and low gate charge
- Application: Load Switch, Power Management Device, Potable Power Adaptors

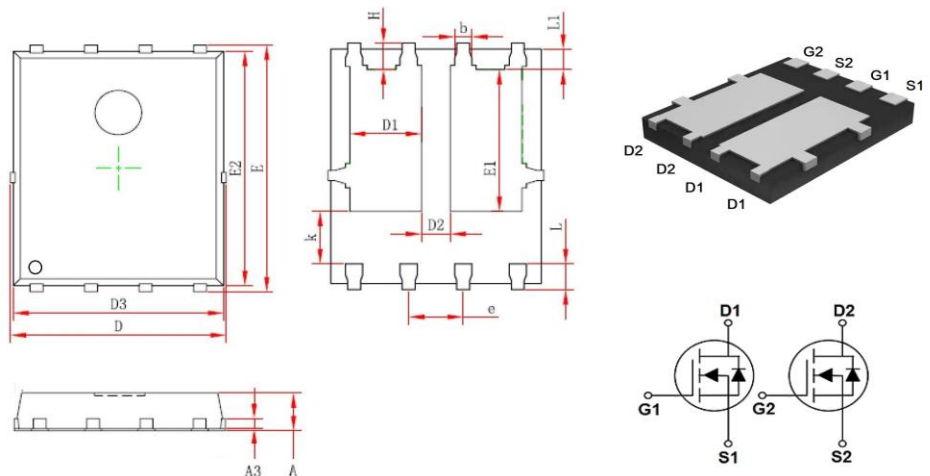


MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current – Continuous	I_D	$T_C = 25^\circ\text{C}, V_{GS} = 10\text{V}$	28
		$T_C = 100^\circ\text{C}, V_{GS} = 10\text{V}$	18
Drain Current – Continuous	I_{DSM}	$T_C = 25^\circ\text{C}, V_{GS} = 10\text{V}$	5.0
		$T_C = 70^\circ\text{C}, V_{GS} = 10\text{V}$	4.0
Drain Current – Pulsed	I_{DM}	$V_{GS} = 10\text{V}$	56
Avalanche Current	I_{AS}	$L = 0.1\text{mH}$	37
Single Pulse Avalanche Energy	E_{AS}	$L = 1\text{mH}, I_D = 15\text{A}, V_{DD} = 25\text{V}$	112
Repetitive Avalanche Energy	E_{AR}		1.9
Power Dissipation	P_D	$T_C = 25^\circ\text{C}$	56
		$T_C = 100^\circ\text{C}$	22
	P_{DSM}	$T_A = 25^\circ\text{C}$	1.7
		$T_A = 70^\circ\text{C}$	1.1
Operating Junction Temperature Range	T_J, T_{stg}	-55 to 150	$^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JC}$	2.2	$^\circ\text{C/W}$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	72	$^\circ\text{C/W}$

DIMENSIONS

Item	Min (mm)	Max (mm)
A	0.9	1.0
A3	0.254	REF
D	4.944	5.096
D1	1.47	1.87
D2	0.47	0.87
D3	4.824	4.976
E	5.974	6.126
E1	3.375	3.575
E2	5.674	5.826
k	1.19	1.39
b	0.35	0.45
e	1.270 TYP	
L	0.559	0.711
L1	0.424	0.576
H	0.574	0.726



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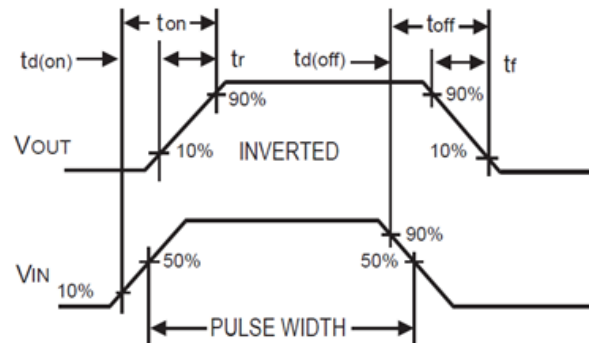
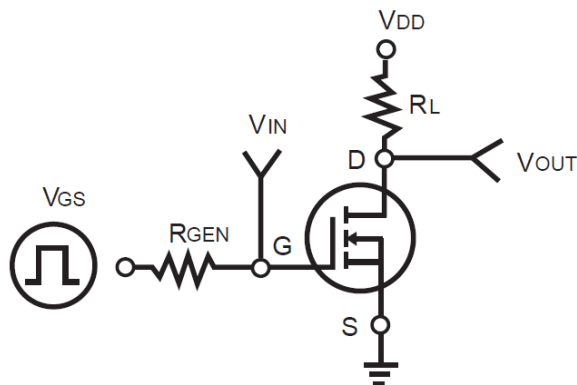
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ELECTRICAL CHARACTERISTICS

Static Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	BV_{DSS}	100	--	--	V
Breakdown Voltage Temperature Coefficient	Reference to 25°C, $I_D=250\mu A$	$\Delta BV_{DSS}/\Delta T_j$	--	0.05	--	V/°C
Forward Transconductance	$V_{DS}=10V, I_D=5A$	g_{FS}	--	6.7	--	S
Zero Gate Voltage Drain Current	$V_{DS}=80V, V_{GS}=0V$	I_{DSS}	--	--	1	μA
	$V_{DS}=80V, V_{GS}=0V, T_j=85^\circ C$	I_{DSS}	--	--	25	μA
Gate Body Leakage Current, Forward	$V_{GS}=\pm 20V$	I_{GSS}	--	--	± 100	nA
Static Drain-Source On-Resistance	$V_{GS}=10V, I_D=5A$	$R_{DS(ON)}$	--	27	35	m Ω
	$V_{GS}=7V, I_D=4A$	$R_{DS(ON)}$	--	31	42	m Ω
Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\mu A$	$V_{GS(th)}$	2	--	4	V
Dynamic Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Input Capacitance	$V_{DS}=50V, V_{GS}=0V, F=1MHz$	C_{iss}	347	496	645	pF
Output Capacitance		C_{oss}	61	87	113	pF
Reverse Transfer Capacitance		C_{rss}	54	77	100	pF
Distributed Resistance	$F=1MHz$	R_g	--	2.8	--	Ω
Switching Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Total Gate Charge	$V_{DS}=50V, V_{GS}=10V, I_D=5A$	Q_g	13.8	19.7	25.6	nC
Gate-Source Charge		Q_{gs}	1.2	2.4	5	
Gate-Drain Charge		Q_{gd}	5	10.7	15	
Turn-On Delay Time	$V_{DS}=50V, V_{GS}=10V, R_G=3\Omega, I_D=5A$	$T_{d(on)}$	--	11.8	--	ns
Turn-On Rise Time		T_r	--	26.6	--	
Turn-Off Delay Time		$T_{d(off)}$	--	27.2	--	
Turn-Off Fall Time		T_f	--	15.8	--	
Drain-Source Body Diode		Conditions	Symbol	Min	Typ.	
Drain-Source Diode Forward Current	--	I_S	--	--	28	A
		I_{SM}	--	--	45	A
Drain-Source Diode Forward Voltage	$V_{GS}=0V, I_S=1.0A$	V_{SD}	--	0.74	1	V
Reverse Recovery Time	$V_{GS}=0V, I_F=5.0A, di_F/dt=100A/\mu s$	t_{rr}	--	29	--	ns
Reverse Recovery Charge	$I_F=5.0A, di_F/dt=100A/\mu s$	Q_{rr}	--	30	--	nC

Note: Pulse width $\leq 300\mu s$, duty cycles $\leq 2\%$



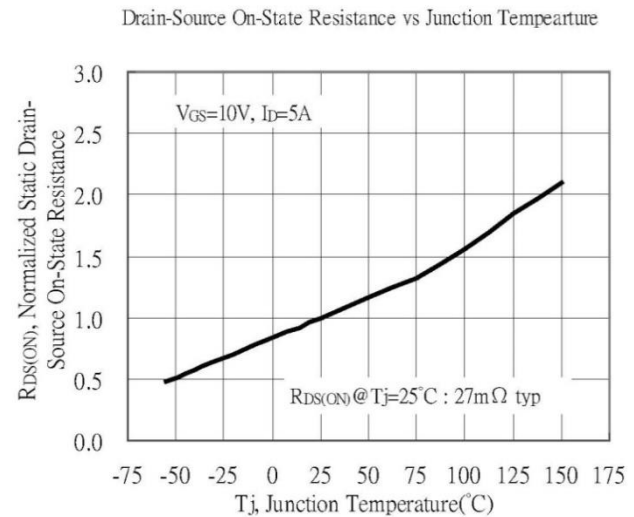
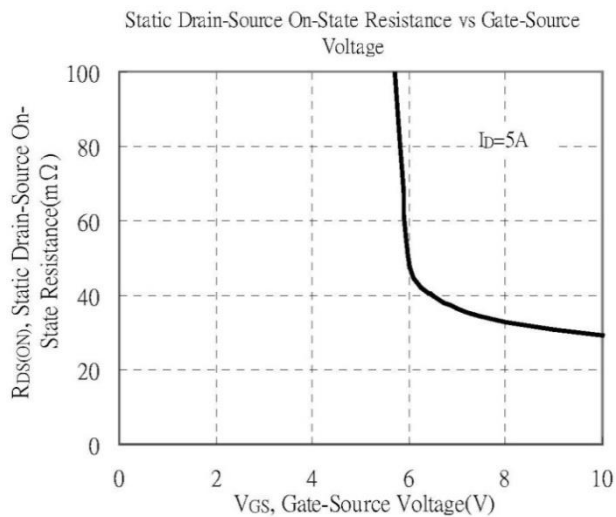
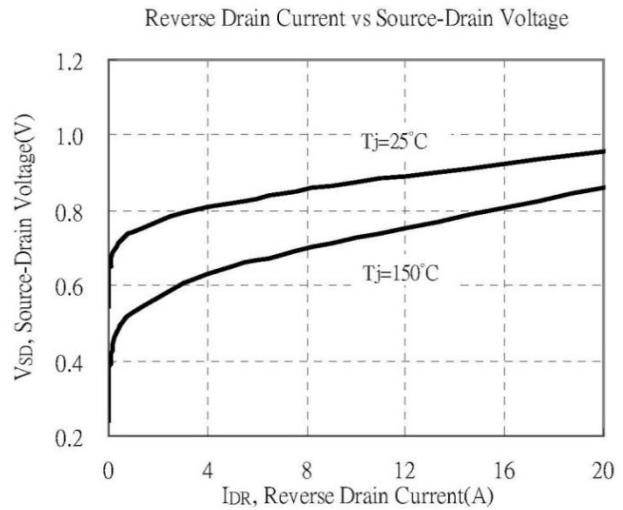
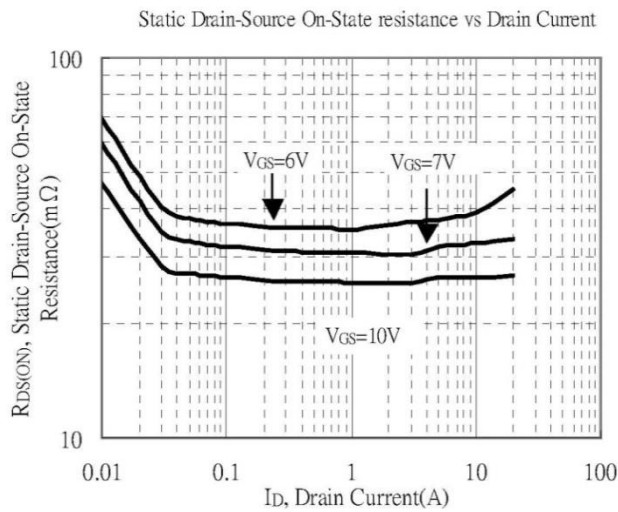
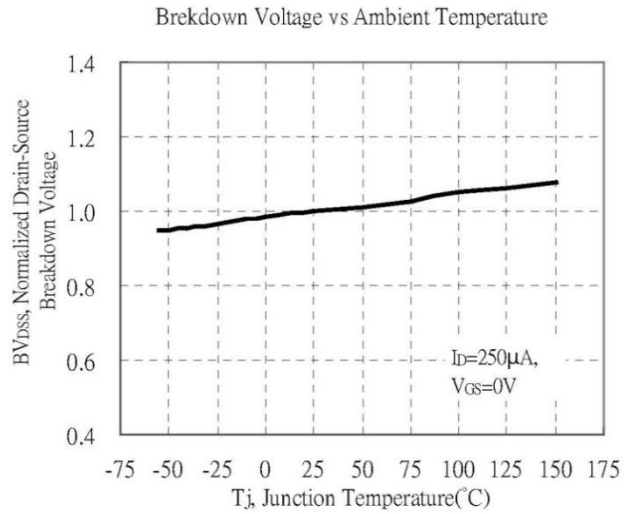
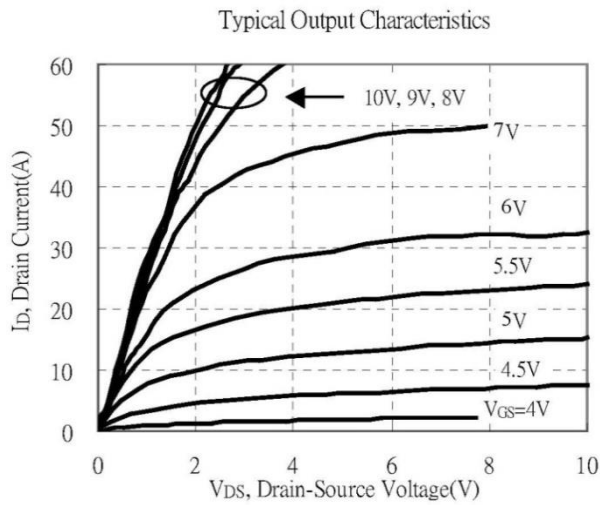
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CHARACTERISTIC CURVES



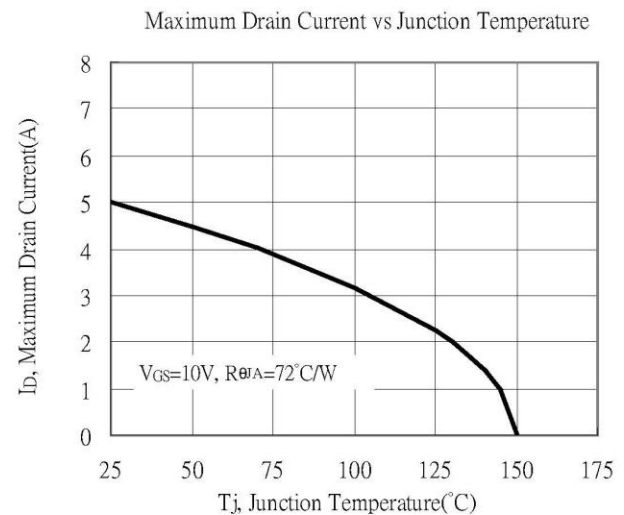
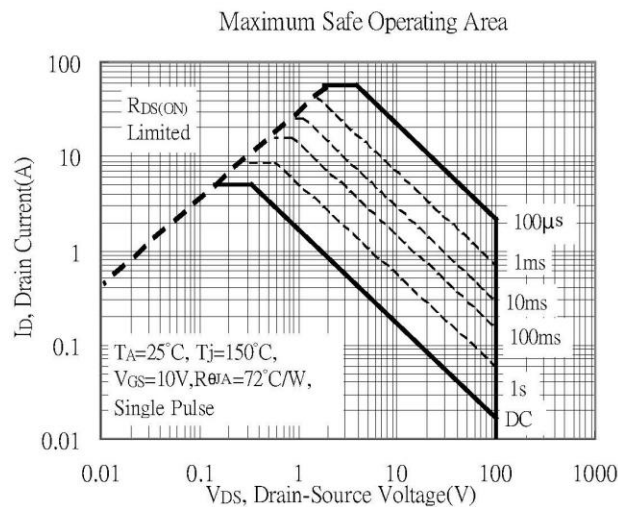
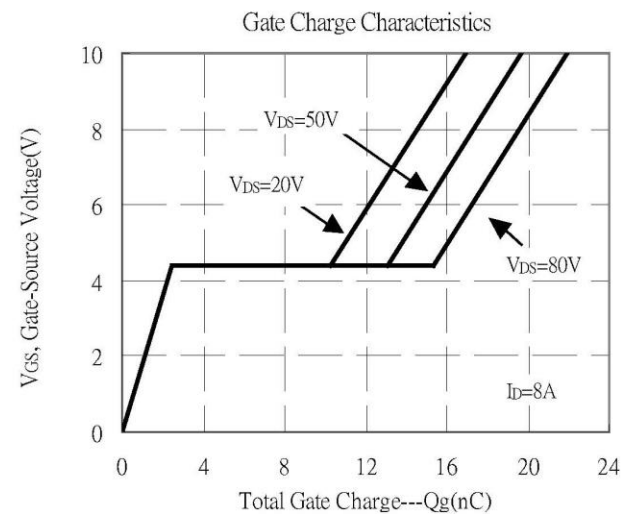
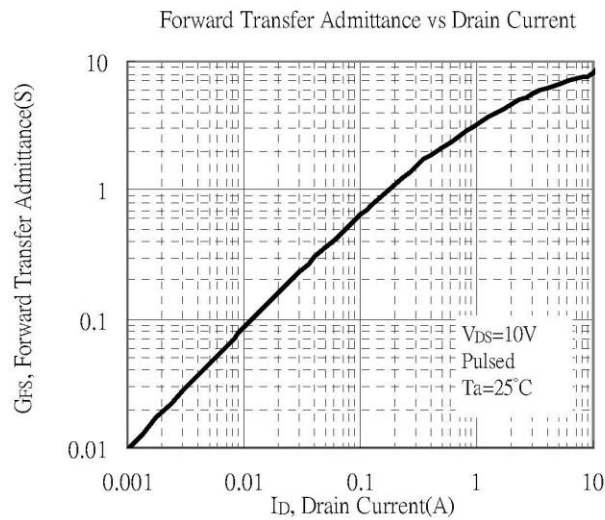
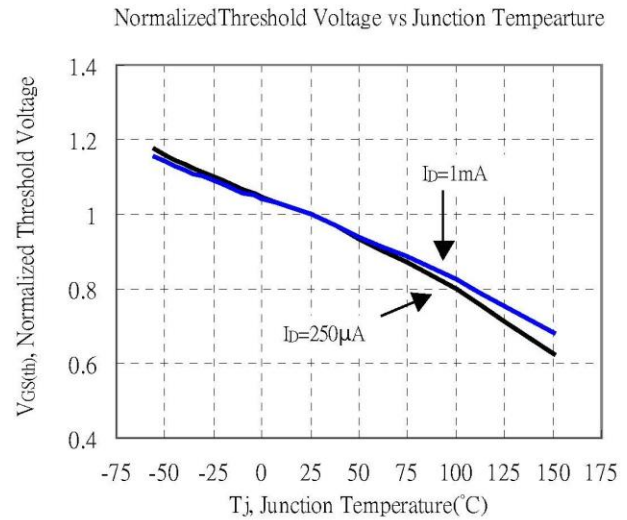
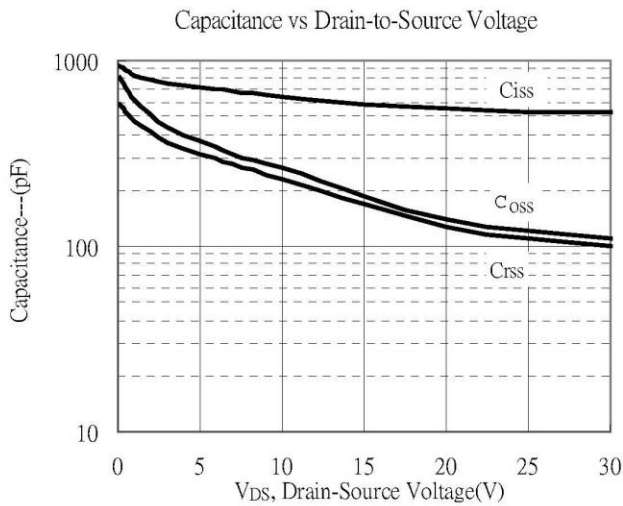
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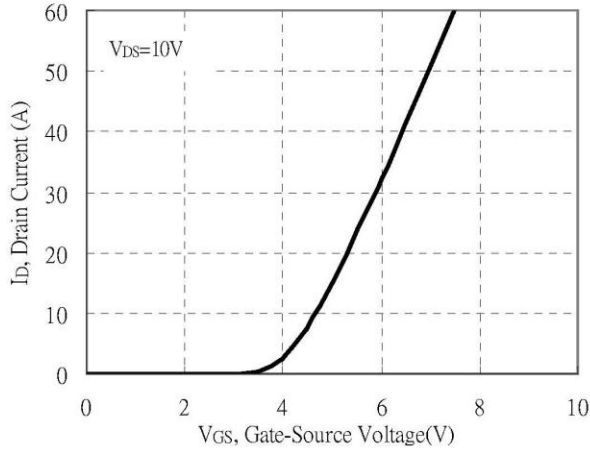
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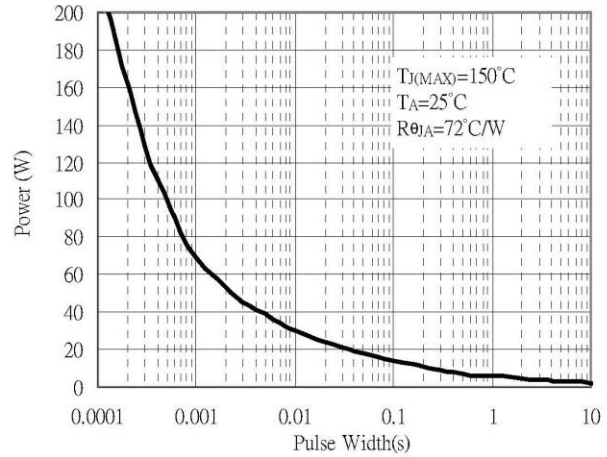
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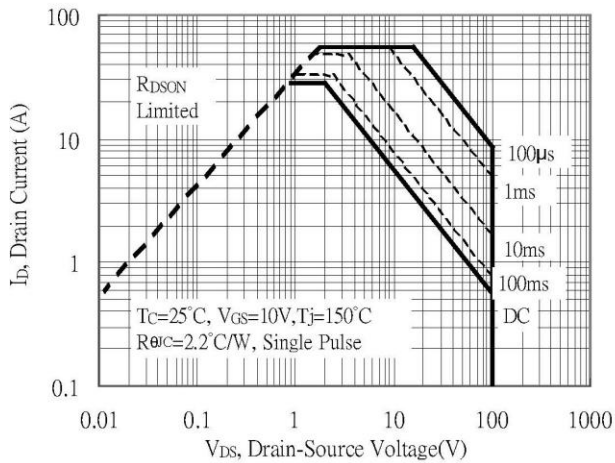
Typical Transfer Characteristics



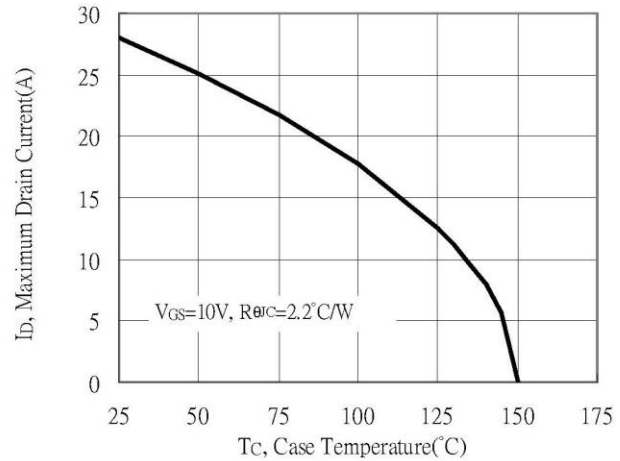
Single Pulse Maximum Power Dissipation



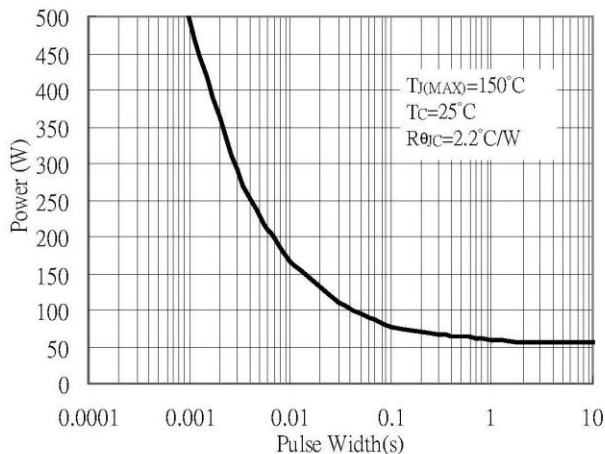
Maximum Safe Operating Area



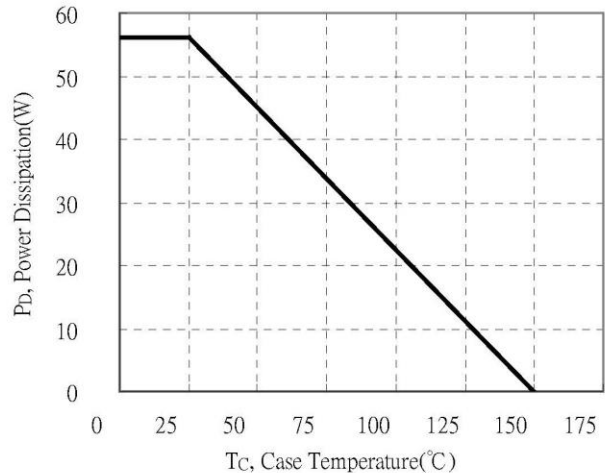
Maximum Drain Current vs Case Temperature



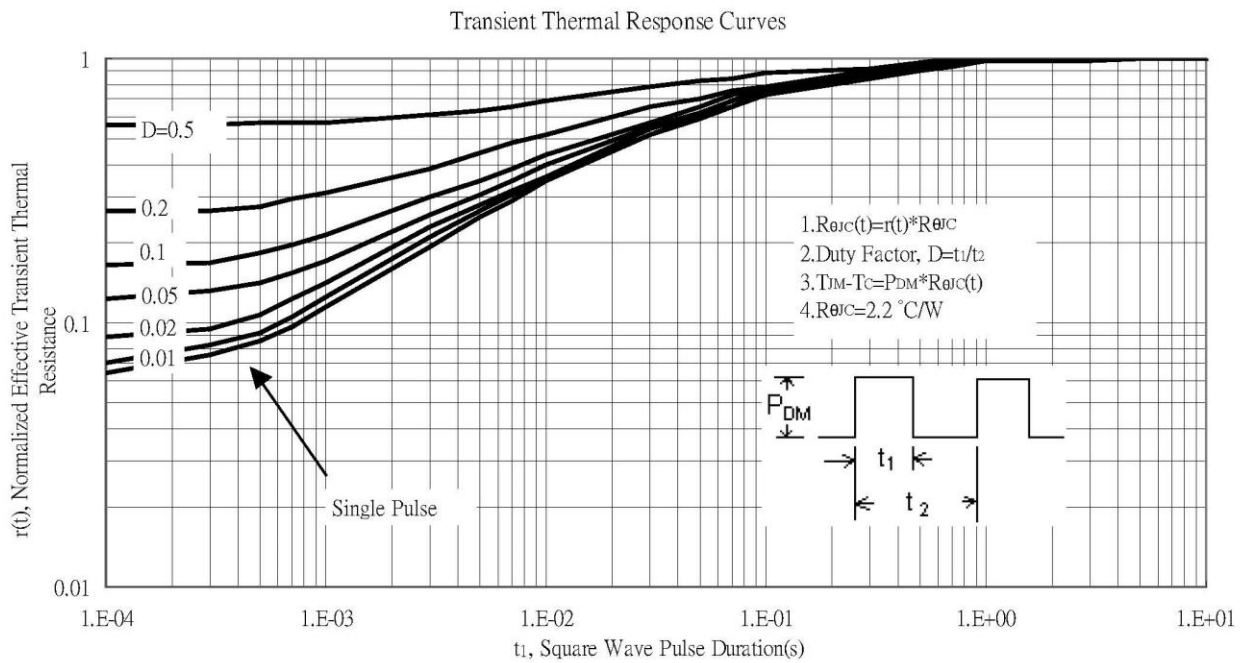
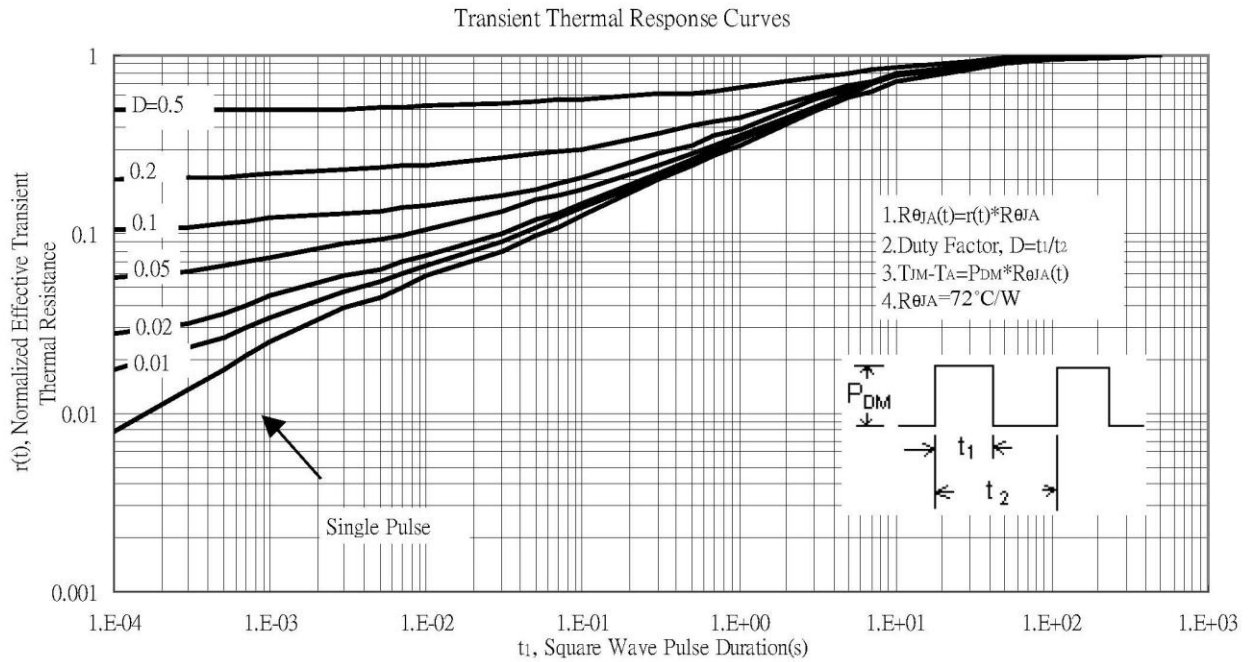
Single Pulse Maximum Power Dissipation



Power Derating Curve



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*Specifications subject to change without notice.