

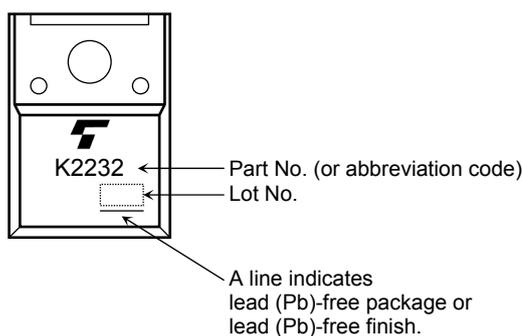
Electrical Characteristics (Ta = 25°C)

Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
Gate leakage current		I_{GSS}	$V_{GS} = \pm 16\text{ V}, V_{DS} = 0\text{ V}$	—	—	± 10	μA
Drain cut-off current		I_{DSS}	$V_{DS} = 60\text{ V}, V_{GS} = 0\text{ V}$	—	—	100	μA
Drain-source breakdown voltage		$V_{(BR)DSS}$	$I_D = 10\text{ mA}, V_{GS} = 0\text{ V}$	60	—	—	V
Gate threshold voltage		V_{th}	$V_{DS} = 10\text{ V}, I_D = 1\text{ mA}$	0.8	—	2.0	V
Drain-source ON resistance		$R_{DS(ON)}$	$V_{GS} = 4\text{ V}, I_D = 12\text{ A}$	—	0.057	0.08	Ω
			$V_{GS} = 10\text{ V}, I_D = 12\text{ A}$	—	0.036	0.046	
Forward transfer admittance		$ Y_{fs} $	$V_{DS} = 10\text{ V}, I_D = 12\text{ A}$	10	16	—	S
Input capacitance		C_{iss}	$V_{DS} = 10\text{ V}, V_{GS} = 0\text{ V}, f = 1\text{ MHz}$	—	1000	—	pF
Reverse transfer capacitance		C_{rss}		—	200	—	
Output capacitance		C_{oss}		—	550	—	
Switching time	Rise time	t_r	<p>$I_D = 12\text{ A}$ $R_L = 2.5\ \Omega$ $V_{DD} = 30\text{ V}$ Duty $\leq 1\%$, $t_W = 10\ \mu\text{s}$</p>	—	20	—	ns
	Turn-on time	t_{on}		—	30	—	
	Fall time	t_f		—	55	—	
	Turn-off time	t_{off}		—	130	—	
Total gate charge (Gate-source plus gate-drain)		Q_g	$V_{DD} \approx 48\text{ V}, V_{GS} = 10\text{ V}, I_D = 25\text{ A}$	—	38	—	nC
Gate-source charge		Q_{gs}		—	25	—	
Gate-drain ("miller") charge		Q_{gd}		—	13	—	

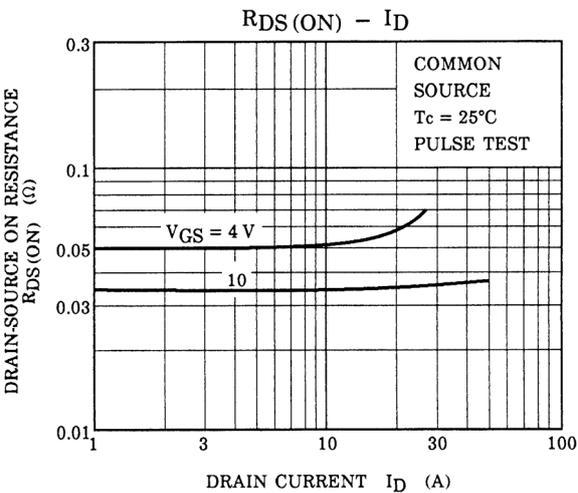
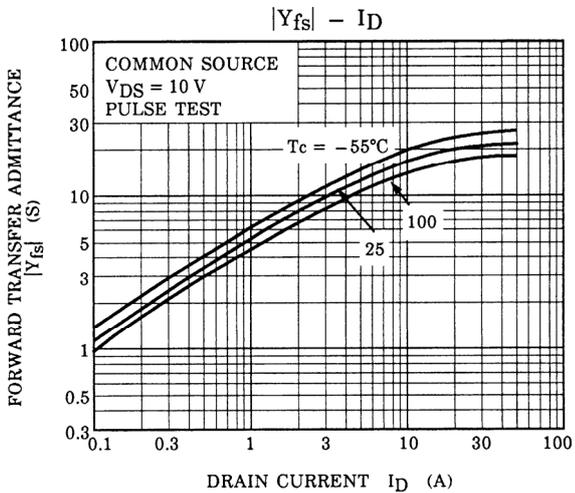
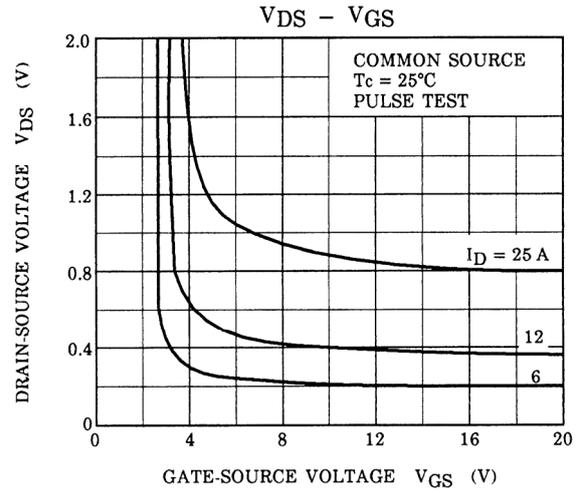
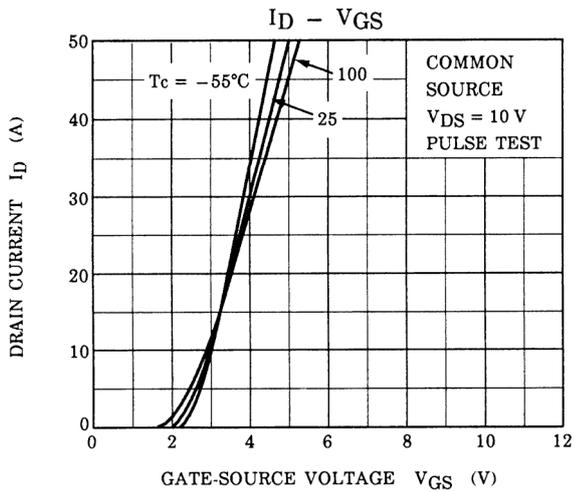
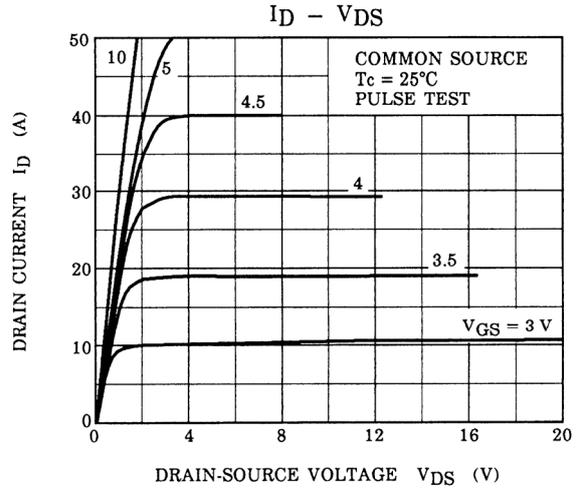
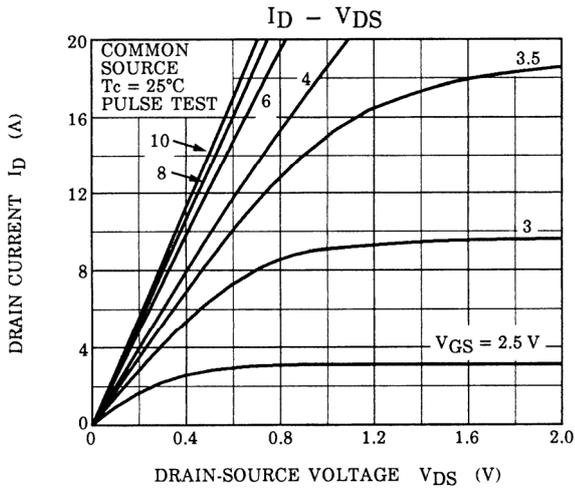
Source-Drain Ratings and Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Continuous drain reverse current (Note 1)	I_{DR}	—	—	—	25	A
Pulse drain reverse current (Note 1)	I_{DRP}	—	—	—	100	A
Forward voltage (diode)	V_{DSF}	$I_{DR} = 25\text{ A}, V_{GS} = 0\text{ V}$	—	—	-1.8	V
Reverse recovery time	t_{rr}	$I_{DR} = 25\text{ A}, V_{GS} = 0\text{ V}, dI_{DR} / dt = 50\text{ A} / \mu\text{s}$	—	50	—	ns
Reverse recovered charge	Q_{rr}		—	35	—	μC

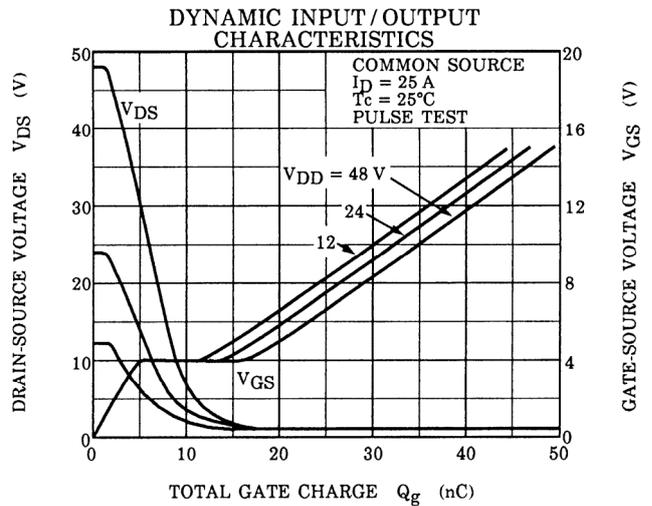
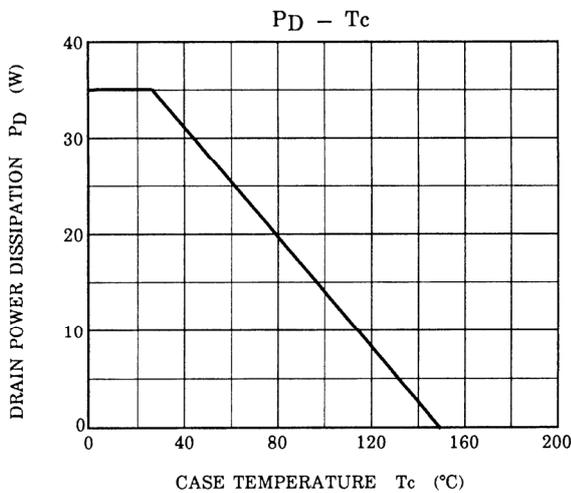
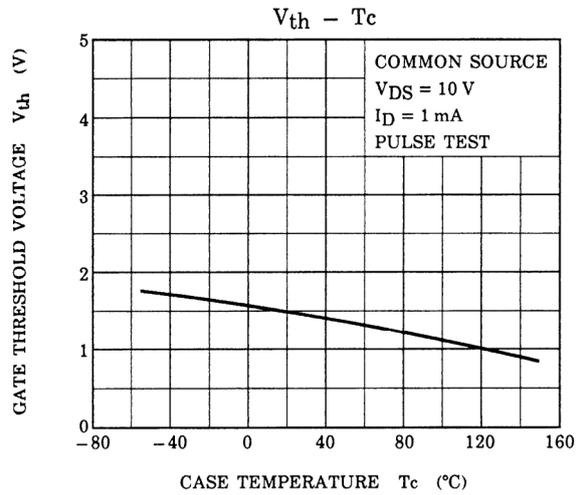
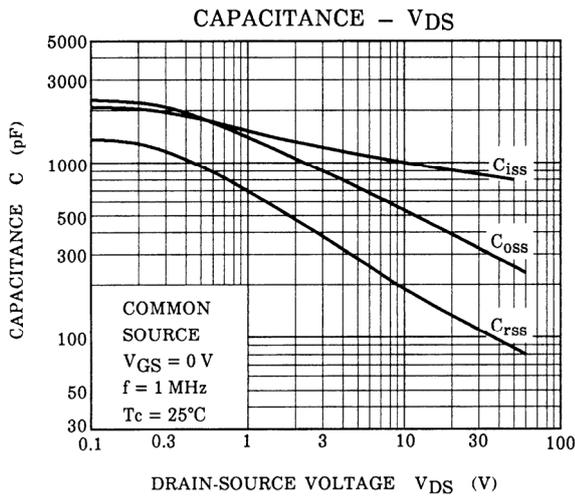
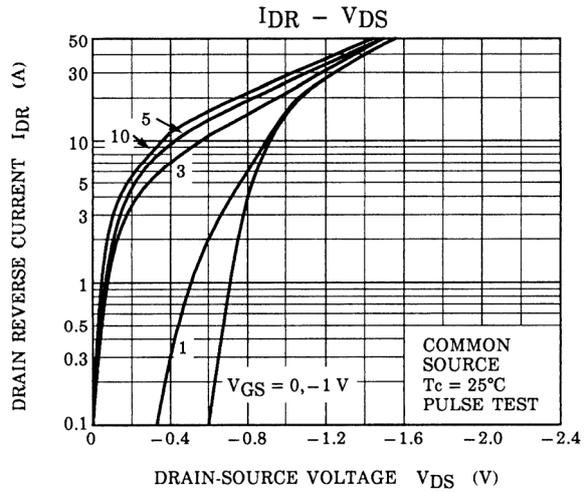
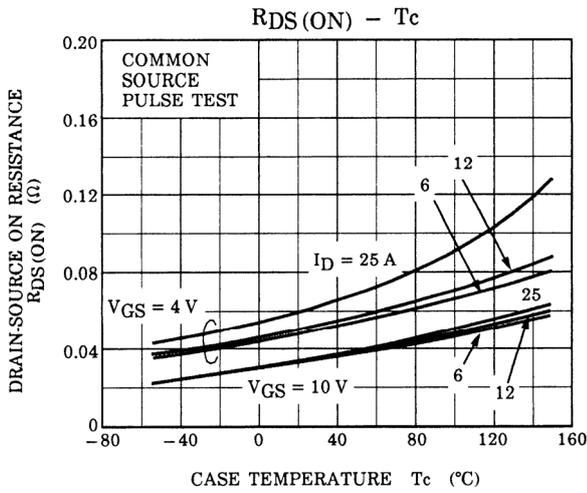
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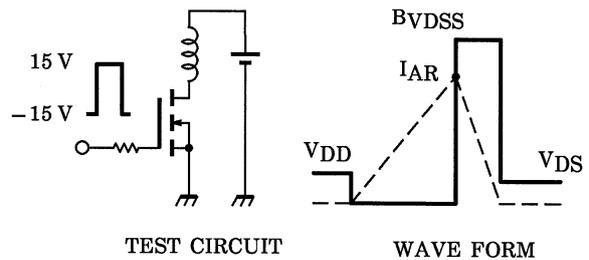
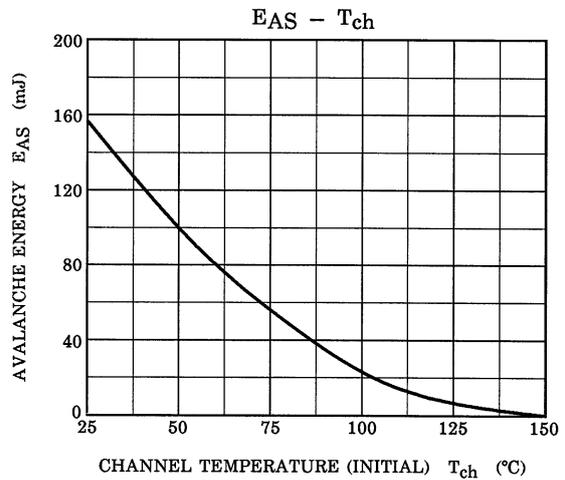
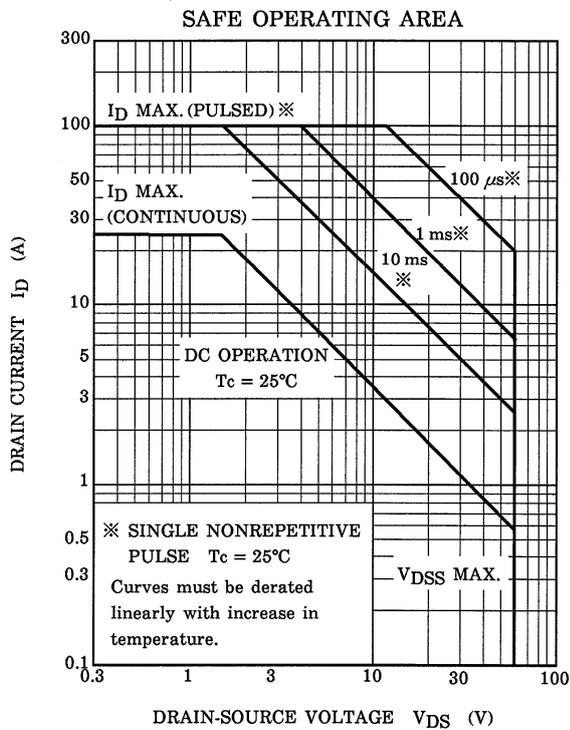
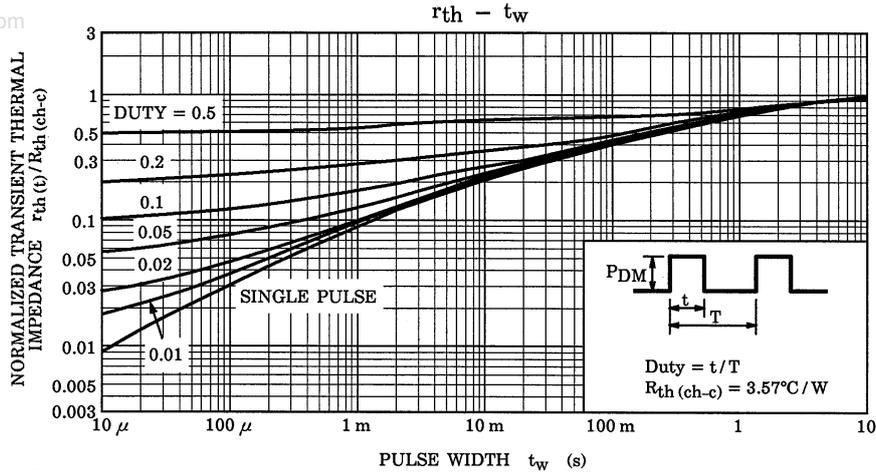
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$R_G = 25 \Omega$
 $V_{DD} = 25 \text{ V}, L = 339 \mu\text{H}$

$$EAS = \frac{1}{2} \cdot L \cdot I^2 \cdot \left(\frac{BVDSS}{BVDSS - VDD} \right)$$

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20070701-EN

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