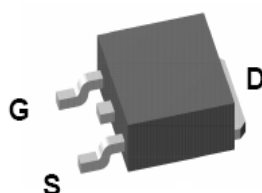


P1504EDG

P-Channel Enhancement Mode MOSFET

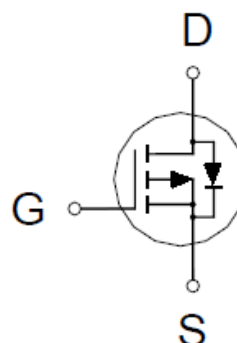
PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
-40V	15mΩ @ $V_{GS} = -10V$	-45A



TO-252

100% Rg tested
100% UIS tested



ABSOLUTE MAXIMUM RATINGS ($T_A = 25\text{ °C}$ Unless Otherwise Noted)

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	-40	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	$T_A = 25\text{ °C}$	I_D	-45	A
	$T_A = 70\text{ °C}$		-36	
Pulsed Drain Current ¹		I_{DM}	-150	
Avalanche Current		I_{AS}	-45	
Avalanche Energy ²	$L=0.1\text{mH}$	E_{AS}	102	mJ
Power Dissipation	$T_C = 25\text{ °C}$	P_D	50	W
	$T_C = 70\text{ °C}$		32	
Junction & Storage Temperature Range		T_J, T_{stg}	-55 to 150	°C

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Ambient	$R_{\theta JA}$		75	°C / W
Junction-to-Case	$R_{\theta JC}$		2.5	

¹Pulse width limited by maximum junction temperature.

² $V_{DD} = -20V$. Starting $T_J = 25\text{ °C}$.

P1504EDG

P-Channel Enhancement Mode MOSFET

ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ\text{C}$, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNITS
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-40			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-1.7	-2.2	-3	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -32V, V_{GS} = 0V$			1	μA
		$V_{DS} = -30V, V_{GS} = 0V, T_J = 55^{\circ}C$			10	
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = -4.5V, I_D = -15A$		19	29	m Ω
		$V_{GS} = -10V, I_D = -25A$		13	15	
Forward Transconductance ¹	g_{fs}	$V_{DS} = -5V, I_D = -25A$		24		S
On-State Drain Current ¹	$I_{D(ON)}$	$V_{DS} = -5V, V_{GS} = -10V$	-150			A
DYNAMIC						
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = -15V, f = 1MHz$		2700	2950	pF
Output Capacitance	C_{oss}			400	430	
Reverse Transfer Capacitance	C_{rss}			230	250	
Gate Resistance	R_g	$V_{GS} = -15mV, V_{DS} = 0V, f = 1MHz$		3.5	4.5	Ω
Total Gate Charge ²	Q_g	$V_{DS} = 0.5V_{(BR)DSS}, V_{GS} = -10V, I_D = -25A$		40	45	nC
Gate-Source Charge ²	Q_{gs}			10	13	
Gate-Drain Charge ²	Q_{gd}			5	8	
Turn-On Delay Time ²	$t_{d(on)}$	$V_{DS} = -20V, R_L = 0.75\Omega, I_D \cong 1A, V_{GS} = -10V, R_{GEN} = 6\Omega$		11		nS
Rise Time ²	t_r			75		
Turn-Off Delay Time ²	$t_{d(off)}$			89		
Fall Time ²	t_f			35		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ($T_J = 25^{\circ}C$)						
Continuous Current	I_S				-25	A
Forward Voltage ¹	V_{SD}	$I_F = I_S, V_{GS} = 0V$		-0.7	-1.3	V
Reverse Recovery Time	t_{rr}	$I_F = -25A, dI_F/dt = 100A / \mu S$		28		nS
Reverse Recovery Charge	Q_{rr}			26		nC

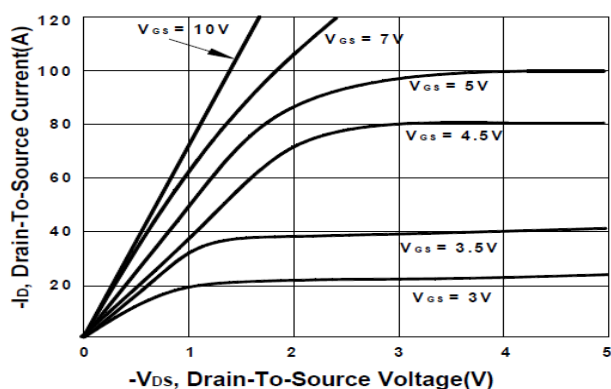
¹Pulse test : Pulse Width $\leq 300 \mu\text{sec}$, Duty Cycle $\leq 2\%$.

²Independent of operating temperature.

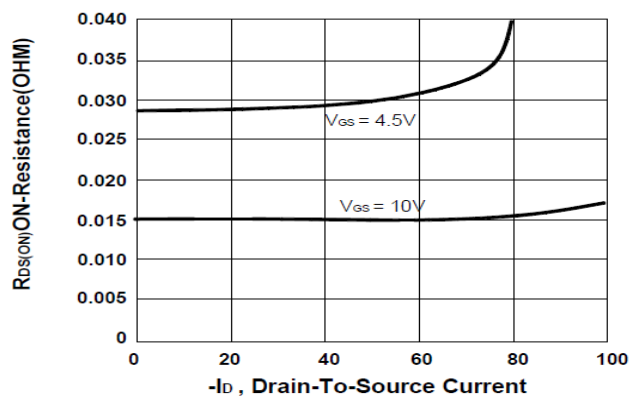
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P-Channel Enhancement Mode MOSFET

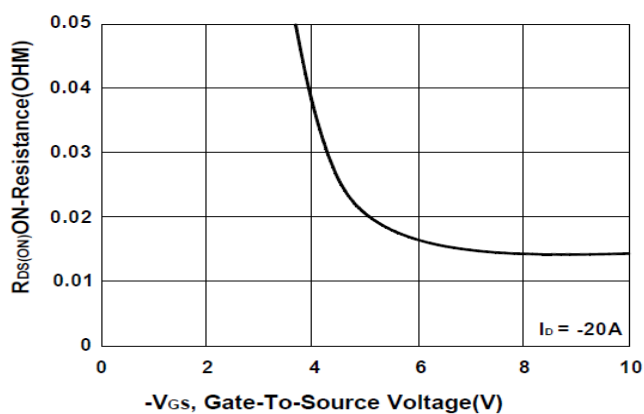
Output Characteristics



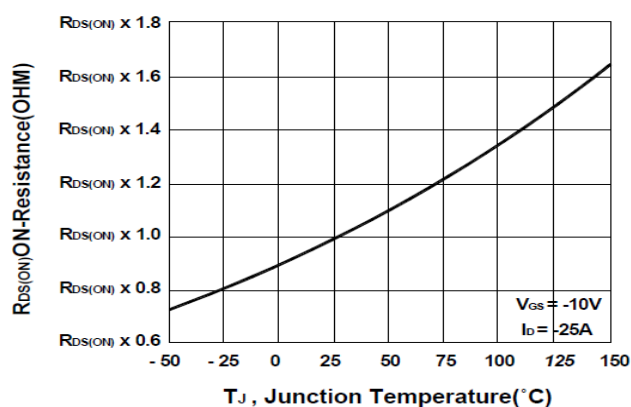
On-Resistance VS Drain Current



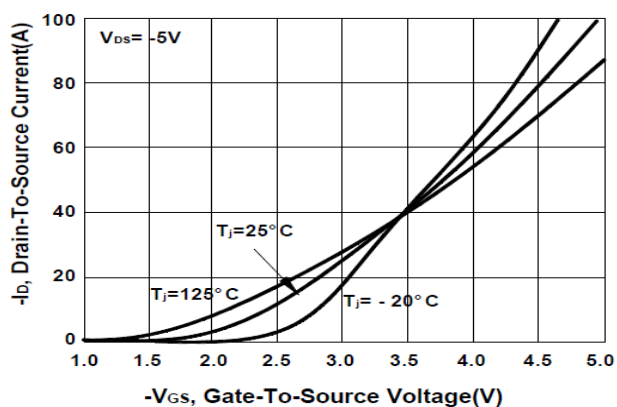
On-Resistance VS Gate-To-Source



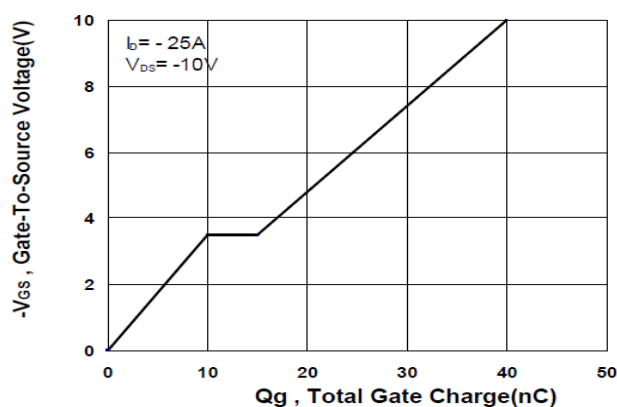
On-Resistance VS Temperature



Transfer Characteristics



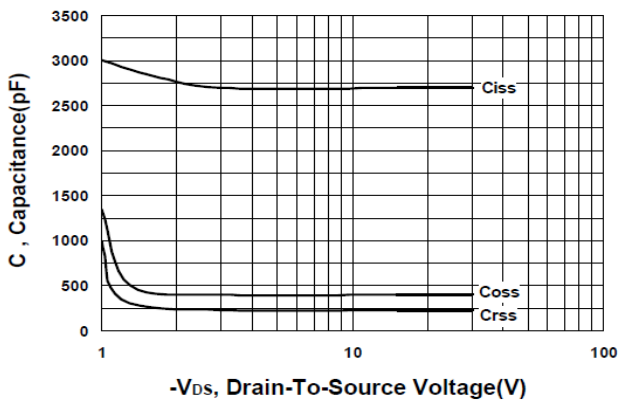
Gate charge Characteristics



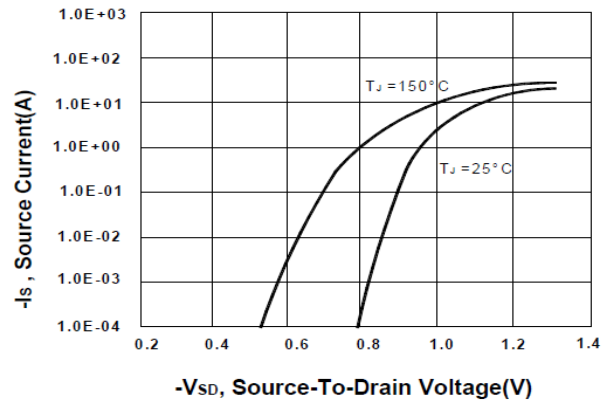
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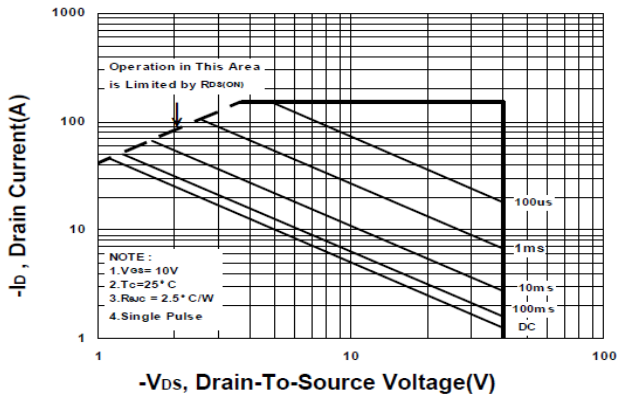
Capacitance Characteristic



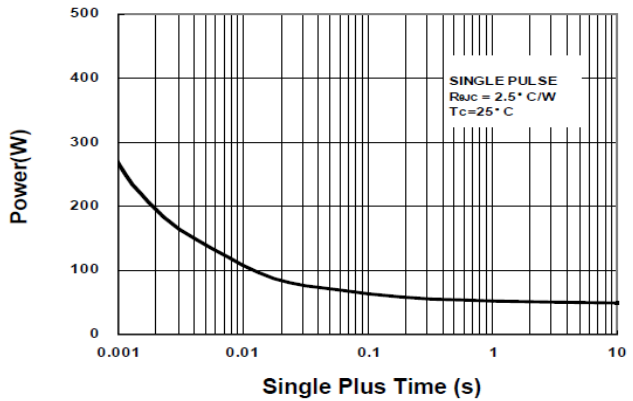
Body Diode Forward Voltage VS Source current



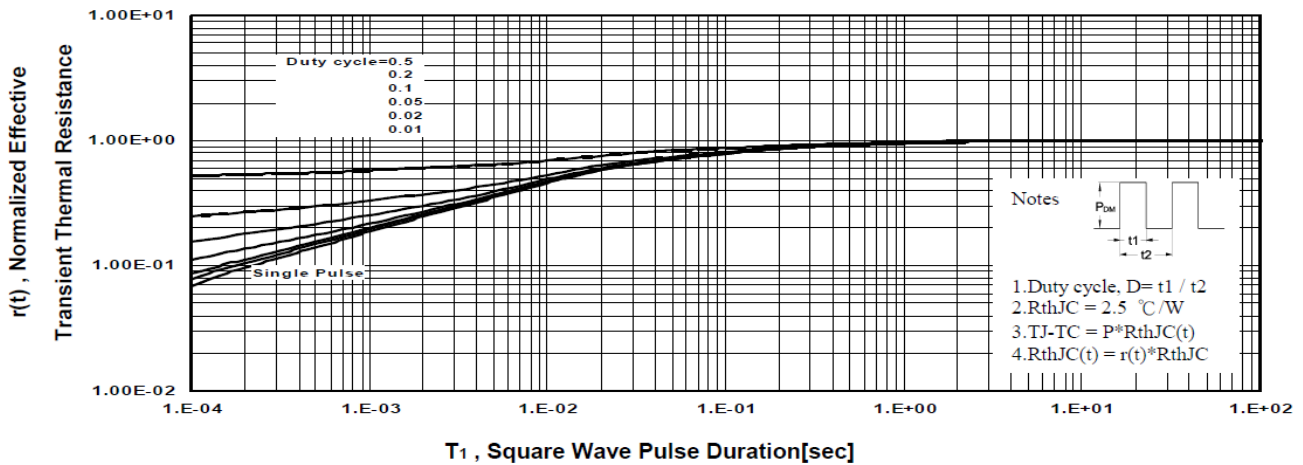
Safe Operating Area



Single Pulse Maximum Power Dissipation



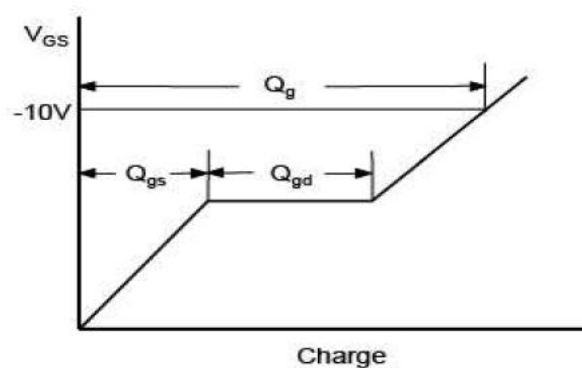
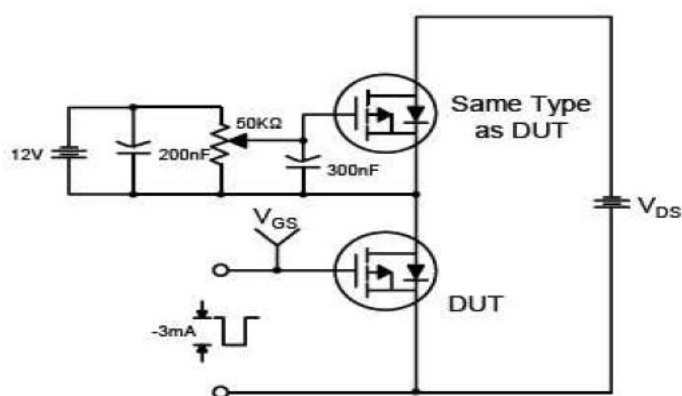
Transient Thermal Response Curve



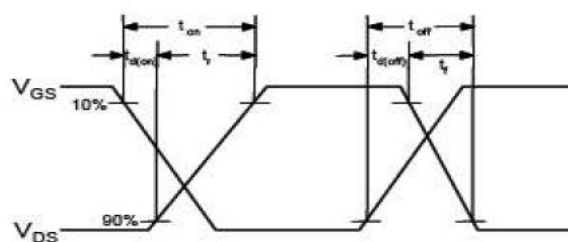
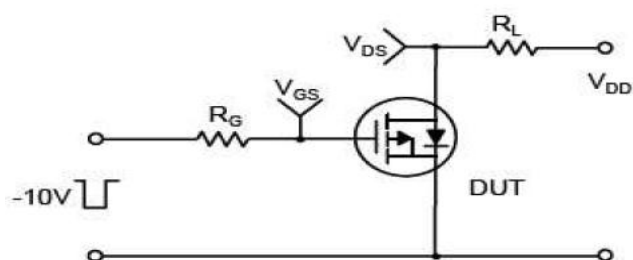
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P-Channel Enhancement Mode MOSFET

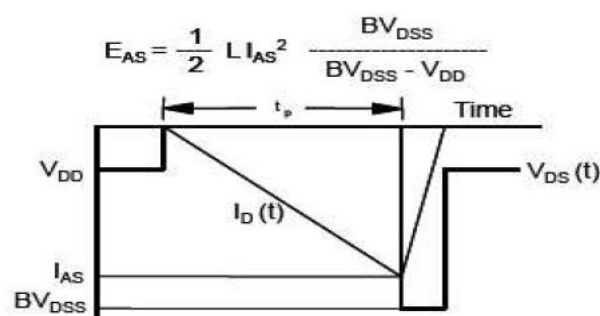
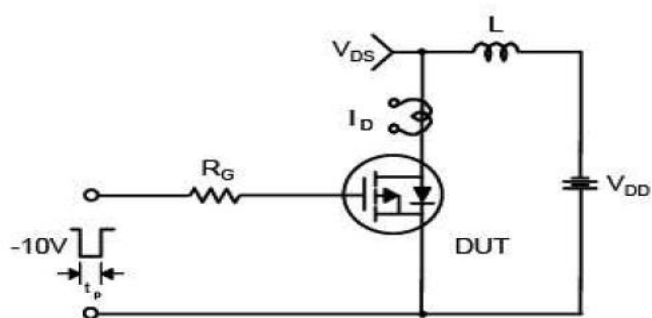
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching Test Circuit & Waveforms



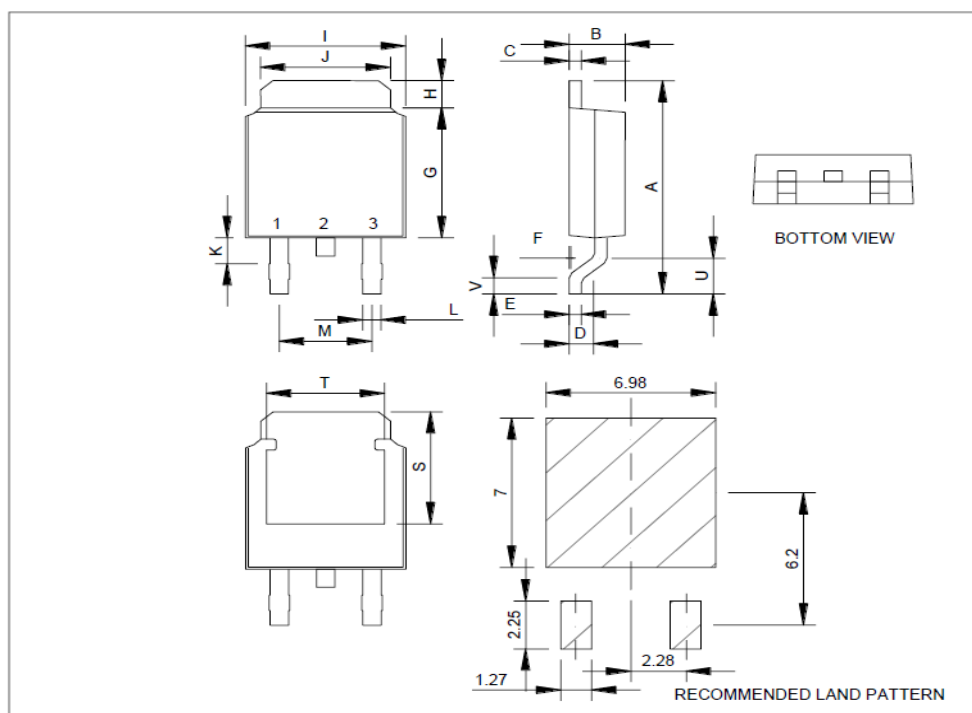
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P-Channel Enhancement Mode MOSFET

Package Dimension

TO-252 (DPAK) MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	8.9	10	10.41	J	4.8		5.64
B	2.1	2.2	2.4	K	0.15		1.1
C	0.4	0.5	0.61	L	0.4	0.76	0.89
D	0.82	1.2	1.5	M	4.2	4.58	5
E	0.4	0.5	0.61	S	4.9	5.1	5.3
F	0		0.2	T	4.6	4.75	5.44
G	5.3	6.1	6.3	U	1.4		1.78
H	0.9		1.7	V	0.55	1.25	1.7
I	6.3	6.5	6.8				



*因为各家封装模具不同而外观略有所差异，不影响电性及Layout。