

Complementary MOSFET

2NP08

■ Features

● N-Channel

$$V_{DS} = 30V, I_D = 18A$$

$$R_{DS(ON)} = 15m\Omega @ V_{GS}=10V$$

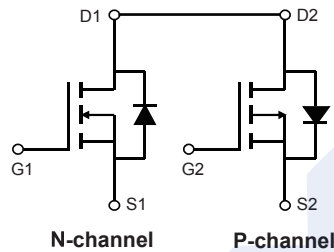
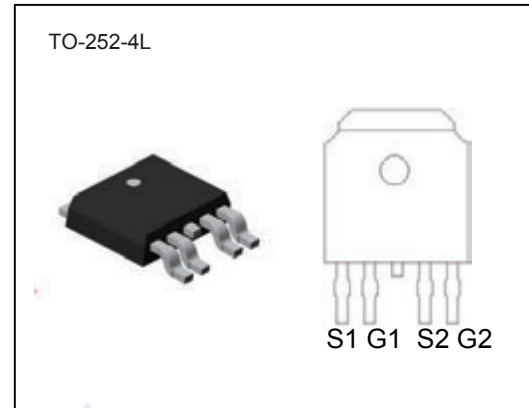
$$R_{DS(ON)} = 20m\Omega @ V_{GS}=4.5V$$

● P-Channel

$$V_{DS} = -30V, I_D = -14A$$

$$R_{DS(ON)} = 24m\Omega @ V_{GS}=-10V$$

$$R_{DS(ON)} = 35m\Omega @ V_{GS}=-4.5V$$

■ Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ Unless otherwise specified)

Parameter	Symbol	N-CH	P-CH	Unit
Drain-Source Voltage	V_{DS}	30	-30	V
Gate-Source Voltage	V_{GS}	± 20	± 20	
Continuous Drain Current	I_D	18	-14	A
		12	-9	
Pulsed Drain Current	I_{DM}	49	-35	
Power Dissipation	P_D	14		W
		7		
Thermal Resistance, Junction to Ambient	(Note 1) $R_{\theta JA}$	42		$^\circ\text{C}/\text{W}$
Junction Temperature	T_J	150		$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 to 150		

Note 1. The device mounted on 1in² FR4 board with 2 oz copper

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■ Electrical Characteristics (TA = 25°C Unless otherwise specified)

Parameter	Symbol	Test Conditions	Type	Min	Typ	Max	Unit
Static							
Drain-Source Breakdown Voltage	V _{DSS}	I _D =250μA, V _{GS} =0V	N-CH	30			V
		I _D =-250μA, V _{GS} =0V	P-CH	-30			
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =30V, V _{GS} =0V	N-CH			1	μA
		V _{DS} =-30V, V _{GS} =0V	P-CH			-1	
Gate-Body Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V	N-CH			±100	nA
		V _{DS} =0V, V _{GS} =±20V	P-CH			±100	
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	N-CH	1		2.5	V
		V _{DS} =V _{GS} , I _D =-250μA	P-CH	-1		-2.5	
Static Drain-Source On-Resistance (Note 2)	R _{DS(on)}	V _{GS} =10V, I _D =6.5A	N-CH		15	25	mΩ
		V _{GS} =4.5V, I _D =5A			20	30	
		V _{GS} =-10V, I _D =-4.5A	P-CH		24	33	
		V _{GS} =-4.5V, I _D =-4.2A			35	44	
Diode Forward Voltage	V _{SD}	I _S =1.7A, V _{GS} =0V	N-CH			1.2	V
		I _S =-1.7A, V _{GS} =0V	P-CH			-1.2	
Dynamic							
Input Capacitance	C _{iss}	N-Channel: V _{GS} =0V, V _{DS} =15V, f=1MHz	N-CH		460		pF
			P-CH		840		
Output Capacitance	C _{oss}	P-Channel: V _{GS} =0V, V _{DS} =-15V, f=1MHz	N-CH		70		pF
			P-CH		120		
Reverse Transfer Capacitance	C _{rss}	N-Channel: V _{GS} =0V, V _{DS} =-15V, f=1MHz	N-CH		17		pF
			P-CH		32		
Total Gate Charge	Q _g	N-Channel: V _{GS} =10V, V _{DS} =15V, I _D =6.7A	N-CH		12		nC
			P-CH		21		
Gate Source Charge	Q _{gs}	P-Channel: V _{GS} =-10V, V _{DS} =-15V, I _D =-6.1A	N-CH		2		nC
			P-CH		4		
Gate Drain Charge	Q _{gd}	N-Channel: V _{GS} =10V, V _{DS} =15V, I _D =6.7A	N-CH		2.5		nC
			P-CH		6		
Turn-On DelayTime	t _{d(on)}	N-Channel: V _{DD} =15V, R _L =15Ω, I _D =1A, V _{GEN} =10V, R _G =6Ω	N-CH		9.3		ns
			P-CH		32		
Turn-On Rise Time	t _r	P-Channel: V _{DD} =-15V, R _L =15Ω, I _D =-1A, V _{GEN} =-10V, R _G =6Ω	N-CH		14		ns
			P-CH		13		
Turn-Off DelayTime	t _{d(off)}	N-Channel: V _{DD} =15V, R _L =15Ω, I _D =1A, V _{GEN} =10V, R _G =6Ω	N-CH		32		ns
			P-CH		28		
Turn-Off Fall Time	t _f	P-Channel: V _{DD} =-15V, R _L =15Ω, I _D =-1A, V _{GEN} =-10V, R _G =6Ω	N-CH		3.2		ns
			P-CH		6.8		

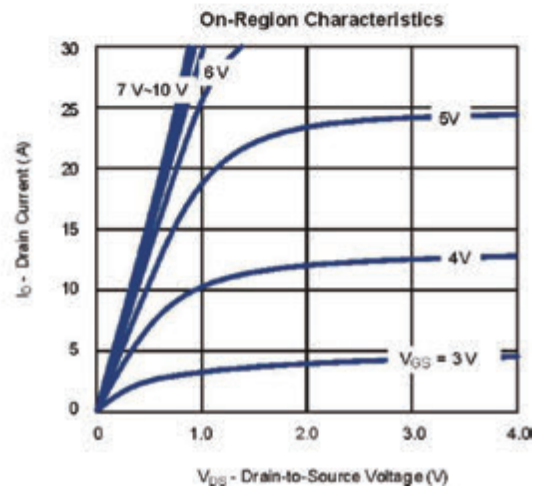
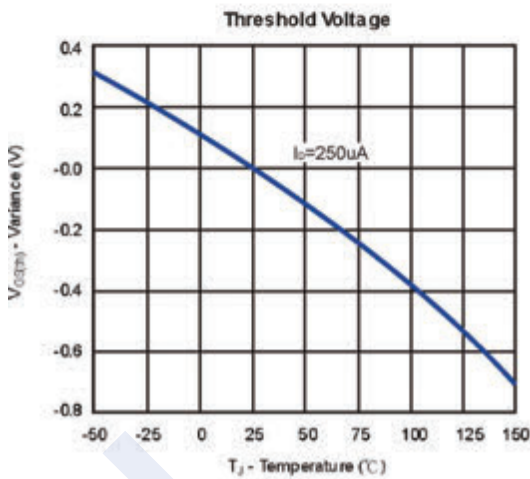
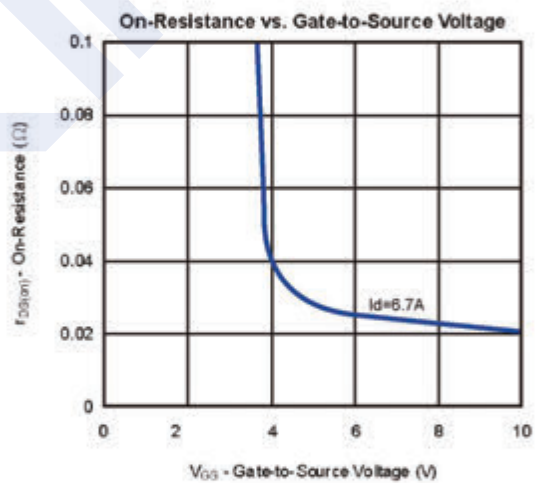
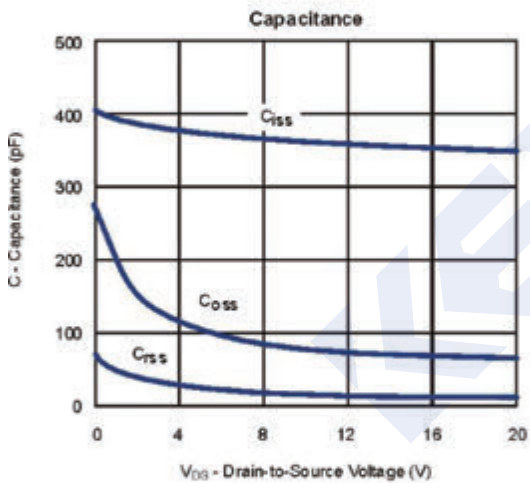
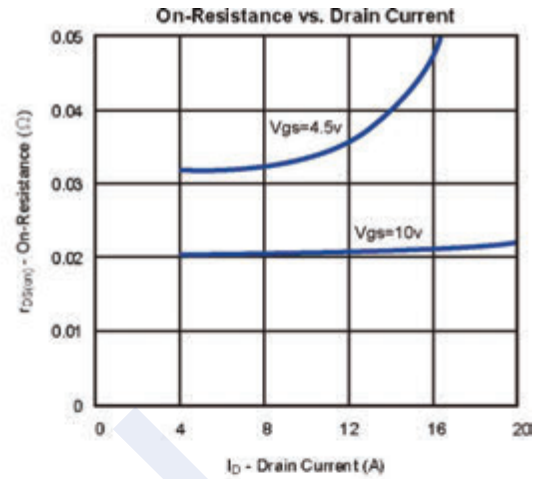
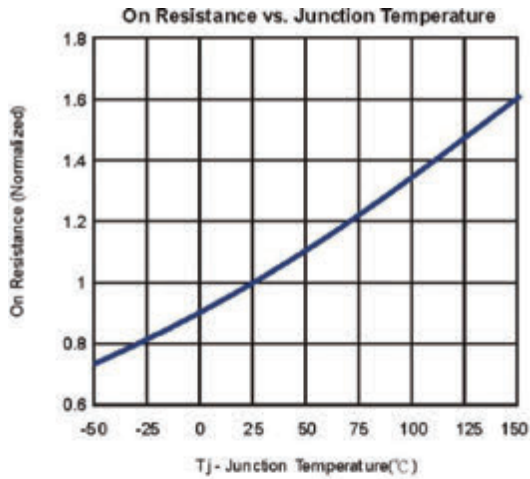
Note 2. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.

■ Marking

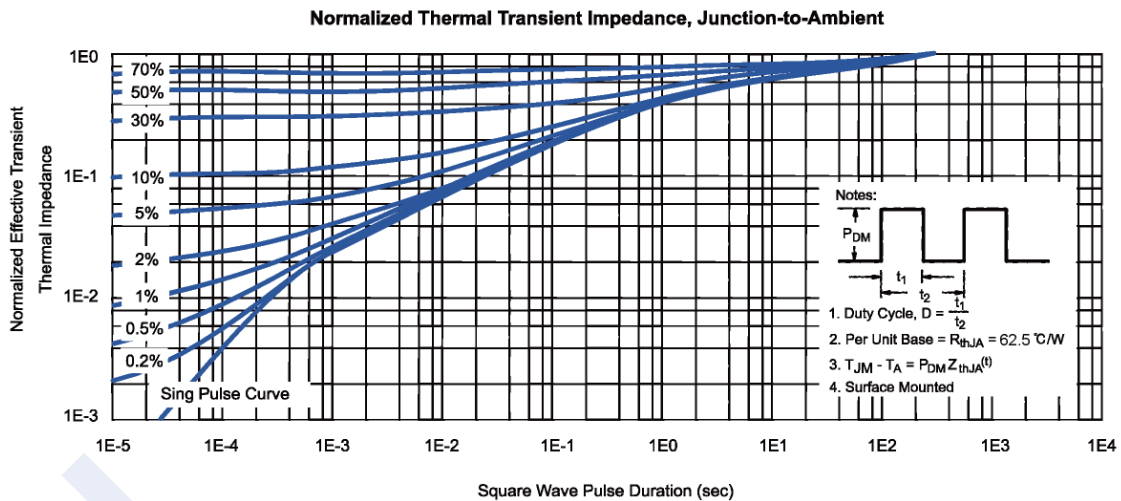
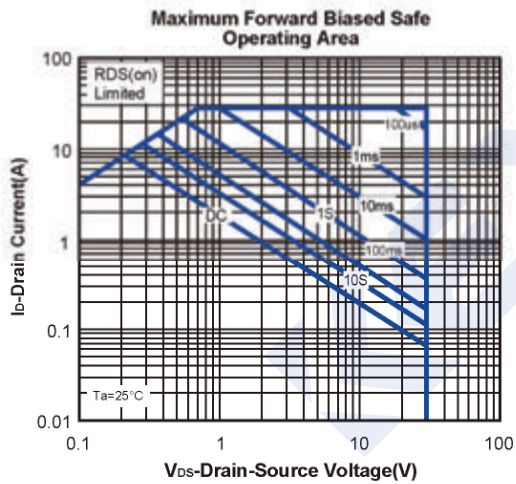
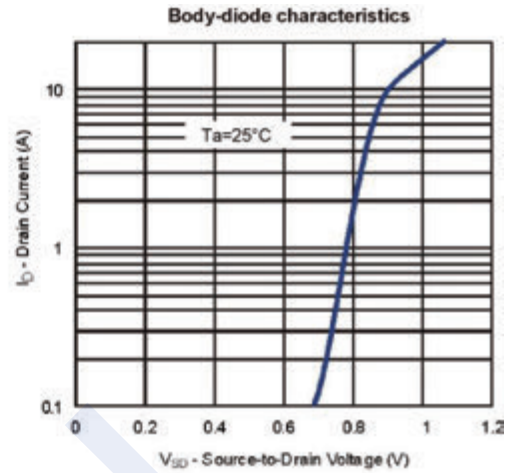
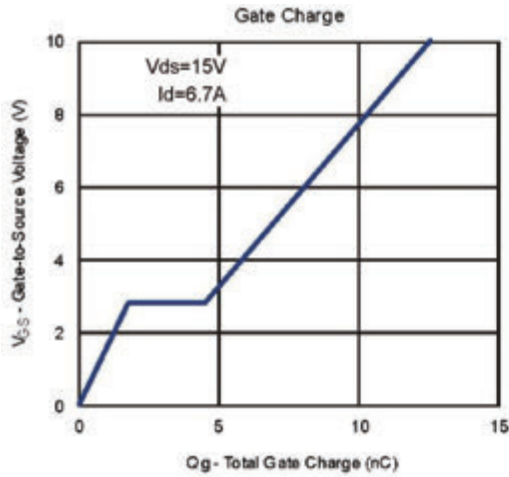
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■ N-Channel Typical Electrical and Thermal Characteristics Curves

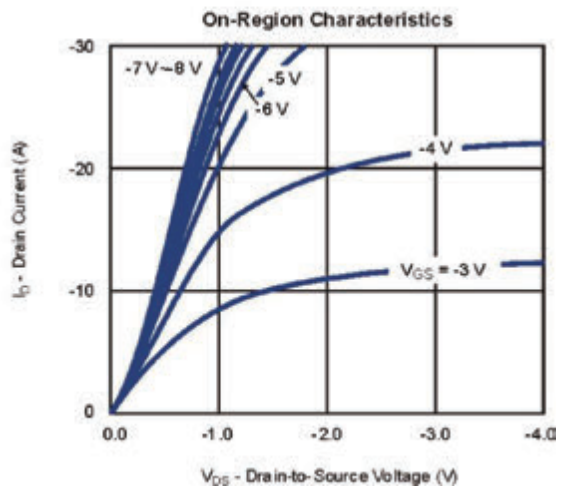
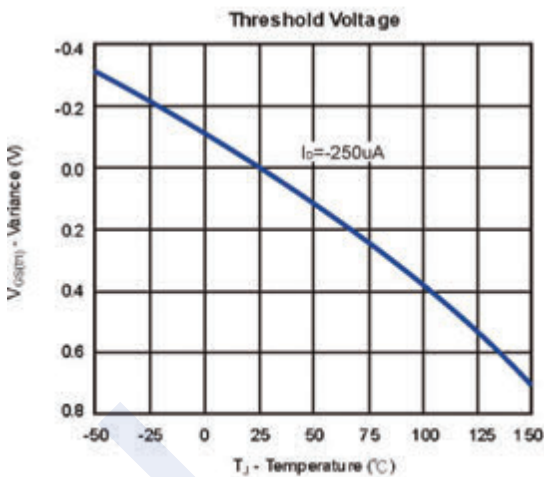
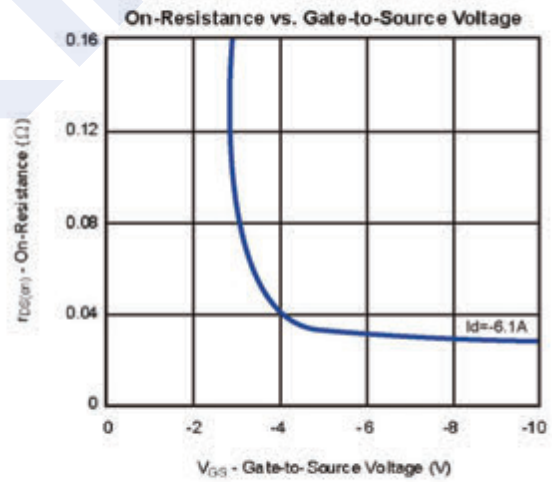
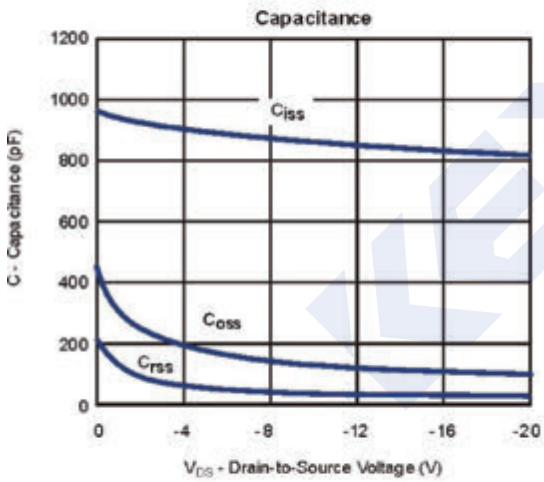
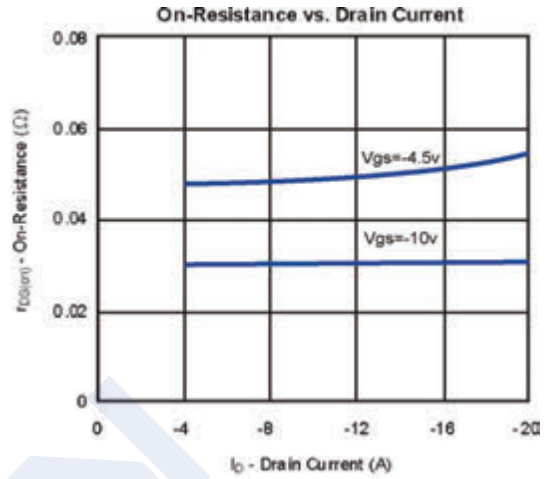
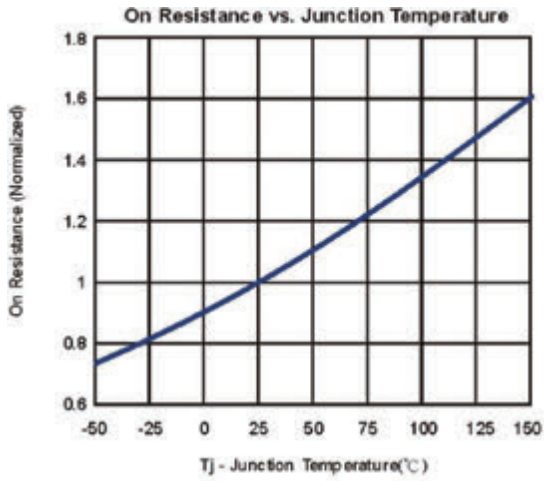


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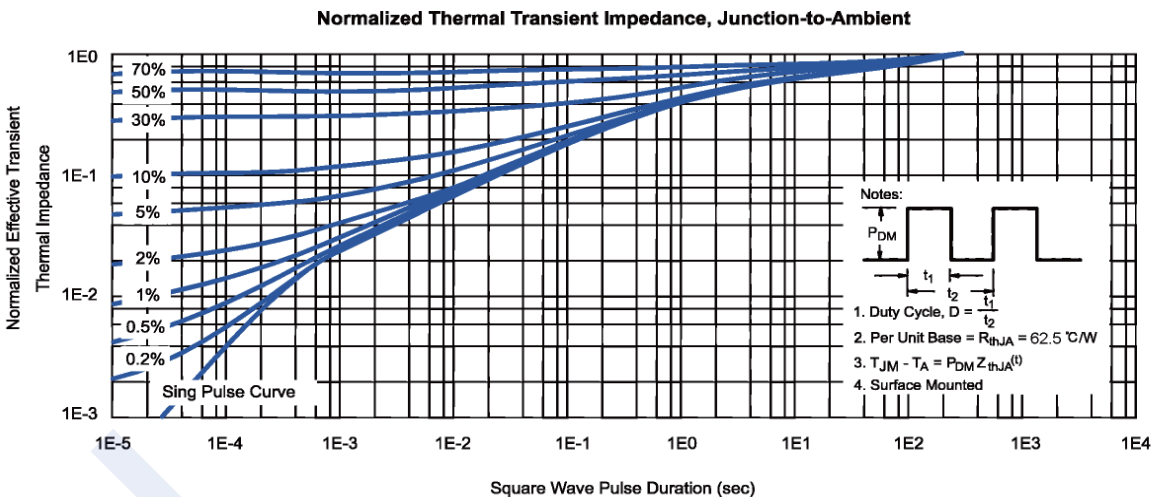
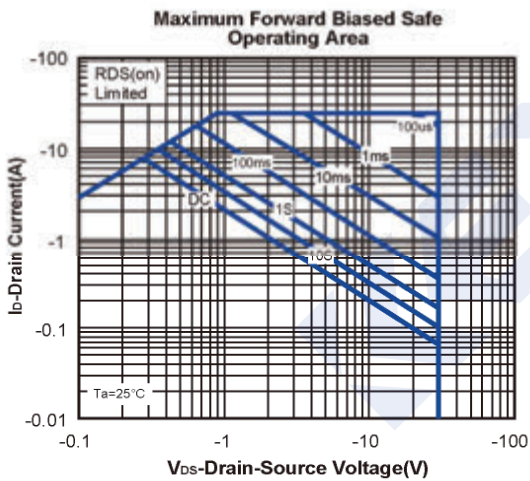
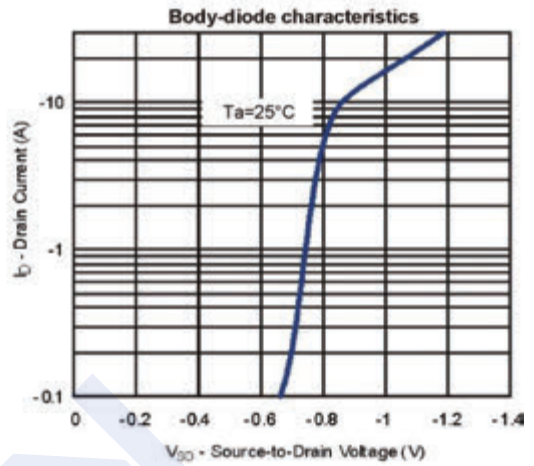
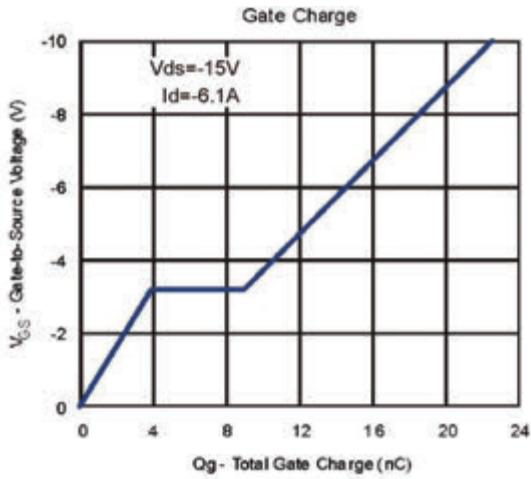


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■ P-Channel Typical Electrical and Thermal Characteristics Curves

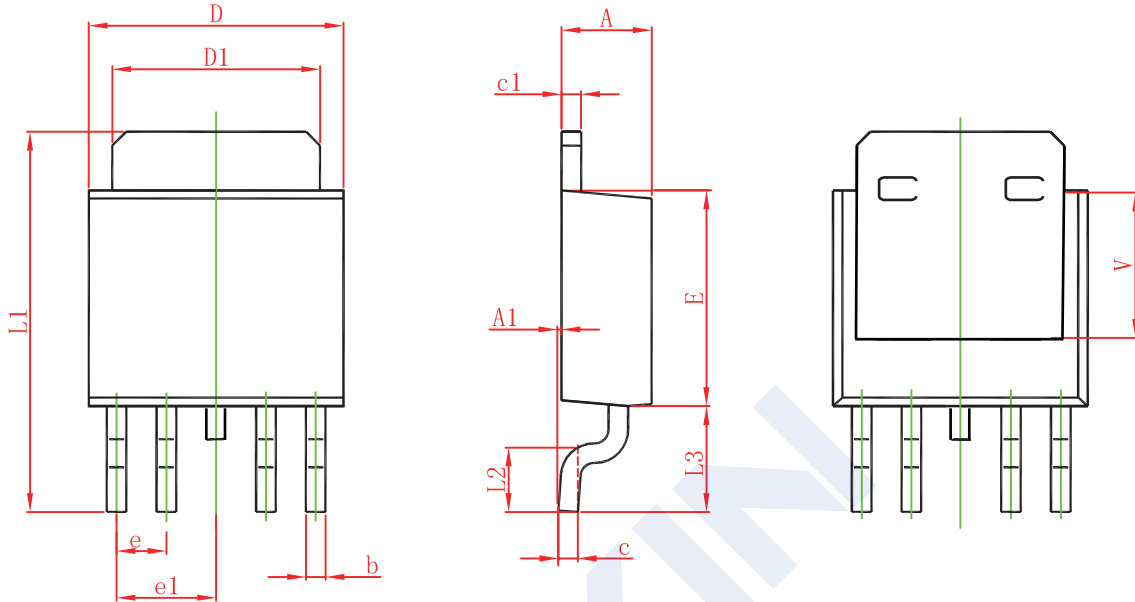


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■ TO-252-4L Package Dimr



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
b	0.400	0.600	0.016	0.024
c	0.430	0.580	0.017	0.023
c1	0.430	0.580	0.017	0.023
D	6.350	6.650	0.250	0.262
D1	5.200	5.400	0.205	0.213
E	5.400	5.700	0.213	0.224
e	1.270 TYP		0.050 TYP	
e1	2.540 TYP		1.000 TYP	
L1	9.500	9.900	0.374	0.390
L2	1.400	1.780	0.055	0.070
L3	2.550	2.900	0.100	0.114
V	3.45 REF		0.136 REF	