

Features

- N-Channel
30V/25A,
 $R_{DS(ON)} = 16m\Omega (Typ.) @ V_{GS}=10V$
 $R_{DS(ON)} = 22m\Omega (Typ.) @ V_{GS}=4.5V$
- P-Channel
-30V/-24A,
 $R_{DS(ON)} = 26m\Omega (Typ.) @ V_{GS}=-10V$
 $R_{DS(ON)} = 39m\Omega (Typ.) @ V_{GS}=-4.5V$
- Very low on-resistance
- Fast Switching

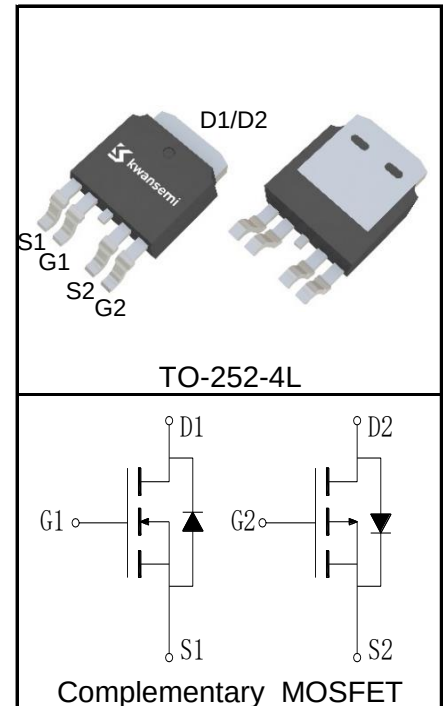
Applications

- Load Switch



Halogen-Free

Pin Description



Absolute Maximum Ratings

Symbol	Parameter	N-Channel	P-Channel	Unit
Common Ratings ($T_A=25^\circ\text{C}$ Unless Otherwise Noted)				
V_{DSS}	Drain-Source Voltage	30	-30	V
V_{GSS}	Gate-Source Voltage	± 20	± 20	
T_J	Maximum Junction Temperature	150	150	$^\circ\text{C}$
T_{STG}	Storage Temperature Range	-55 to 150	-55 to 150	$^\circ\text{C}$
I_S	Diode Continuous Forward Current	$T_C=25^\circ\text{C}$ 25	-24	A
Mounted on Large Heat Sink				
$I_{DP}^{①}$	Pulse Drain Current	$T_C=25^\circ\text{C}$ 100	-96	A
$I_D^{②}$	Continuous Drain Current($V_{GS}=\pm 10V$)	$T_C=25^\circ\text{C}$ 25	-24	A
		$T_C=100^\circ\text{C}$ 16	-15	
P_D	Maximum Power Dissipation	$T_C=25^\circ\text{C}$ 21	27	W
		$T_C=100^\circ\text{C}$ 8.6	10	
$R_{\theta JC}$	Thermal Resistance-Junction to Case	5.8	4.6	$^\circ\text{C/W}$
$R_{\theta JA}^{③}$	Thermal Resistance-Junction to Ambient	100	100	$^\circ\text{C/W}$
Drain-Source Avalanche Ratings				
$E_{AS}^{④}$	Avalanche Energy, Single Pulsed	25	56	mJ

Electrical Characteristics ($T_C=25^{\circ}\text{C}$ Unless Otherwise Noted)

Symbol	Parameter	Test Condition	KS3637DA4			Unit	
			Min.	Typ.	Max.		
Static Characteristics							
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250μA	N	30			V
		V _{GS} =0V, I _{DS} =-250μA	P	-30			
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =30V, V _{GS} =0V	N			1	μA
				T _J =125°C			
		V _{DS} =-30V, V _{GS} =0V	P			-1	
				T _J =125°C			
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250μA	N	1.1	1.6	2.1	V
		V _{DS} =V _{GS} , I _{DS} =-250μA	P	-1.1	-1.6	-2.1	
I _{GSS}	Gate Leakage Current	V _{GS} =±20V, V _{DS} =0V	N			±100	nA
		V _{GS} =±20V, V _{DS} =0V	P			±100	
R _{DS(ON)} ^⑤	Drain-Source On-state Resistance	V _{GS} =10V, I _{DS} =8A	N		16	20	mΩ
		V _{GS} =-10V, I _{DS} =-8A	P		26	31	
		V _{GS} =4.5V, I _{DS} =6A	N		22	29	
		V _{GS} =-4.5V, I _{DS} =-6A	P		39	50	
Diode Characteristics							
V _{SD} ^⑤	Diode Forward Voltage	I _{SD} =8A, V _{GS} =0V	N		0.87	1.2	V
		I _{SD} =-8A, V _{GS} =0V	P		-0.93	-1.2	
t _{rr}	Reverse Recovery Time	N-Channel I _{SD} =8A, dI _{SD} /dt=100A/μs	N		7		ns
			P		12		
Q _{rr}	Reverse Recovery Charge	P-Channel I _{SD} =-8A, dI _{SD} /dt=100A/μs	N		9		nC
			P		16		
Dynamic Characteristics ^⑥							
R _G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz	N		5.2		Ω
			P		8		
C _{iss}	Input Capacitance	N-Channel V _{GS} =0V, V _{DS} =15V, Frequency=1.0MHz	N		435		pF
			P		875		
C _{oss}	Output Capacitance		N		65		
			P		100		
C _{rss}	Reverse Transfer Capacitance	P-Channel V _{GS} =0V, V _{DS} =-15V, Frequency=1.0MHz	N		60		
			P		90		

Electrical Characteristics ($T_C=25^{\circ}\text{C}$ Unless Otherwise Noted)

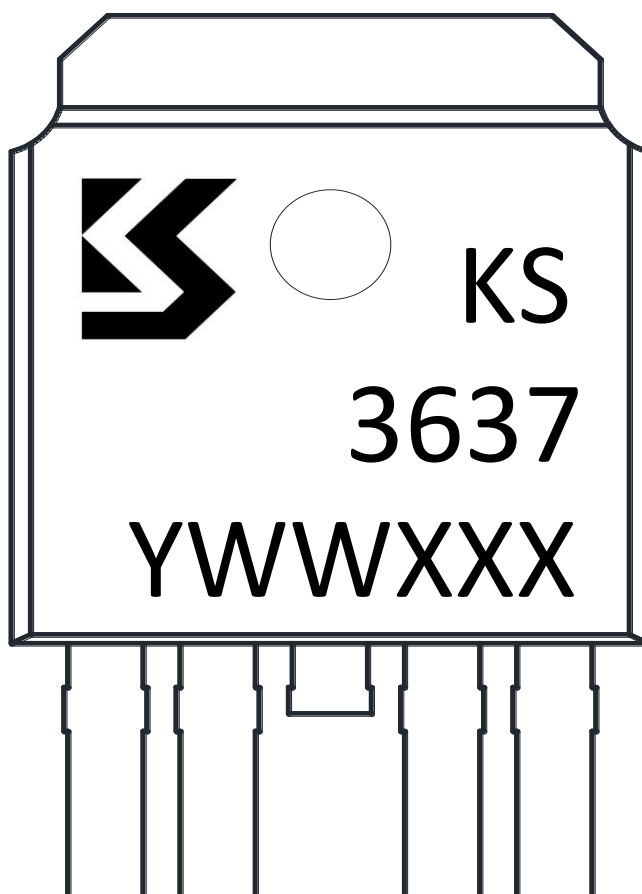
Symbol	Parameter	Test Condition	KS3637DA4			Unit	
			Min.	Typ.	Max.		
Dynamic Characteristics ^⑥							
t _{d(ON)}	Turn-on Delay Time	N-Channel V _{DD} =15V, I _{DS} =8A, V _{GEN} =10V, R _G =3Ω	N		6		ns
t _r	Turn-on Rise Time		P		11		
			N		9		
t _{d(OFF)}	Turn-off Delay Time		P		20		
		N		16			
t _f	Turn-off Fall Time	P		29			
		N		7			
		P		12			
Gate Charge Characteristics ^⑥							
Q _g	Total Gate Charge	N-Channel V _{DS} =15V, V _{GS} =10V, I _{DS} =8A	N		11		nC
Q _{gs}	Gate-Source Charge		P		21		
			N		1.4		
Q _{gd}	Gate-Drain Charge		P		4.2		
		N		2.8			
		P		5.5			

Notes:

- ① Pulse width limited by safe operating area.
- ② Calculated continuous current based on maximum allowable junction temperature.
- ③ When mounted on 1 inch square copper board, $t \leq 10\text{sec}$. The value in any given application depends on the user's specific board design.
- ④ Limited by T_{Jmax} . Starting $T_J = 25^{\circ}\text{C}$, N Channel: $I_{ASmax} = 10\text{A}$, $L=0.5\text{mH}$, $V_{DD} = 20\text{V}$, $R_G = 25\Omega$, $V_{GS}=10\text{V}$, Part not recommended for use above this value. 100% Final Test at $I_{AS}=7\text{A}$, $L=0.5\text{mH}$. P-Channel: $I_{ASmax} = -15\text{A}$, $L=0.5\text{mH}$, $V_{DD} = -20\text{V}$, $R_G = 25\Omega$, $V_{GS}=-10\text{V}$, Part not recommended for use above this value. 100% Final Test at $I_{AS}=-10\text{A}$, $L=0.5\text{mH}$.
- ⑤ Pulse test; Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.
- ⑥ Guaranteed by design, not subject to production testing.

Ordering and Marking Information

Device	Package	Packaging	Quantity	Reel Size	Tape width
KS3637DA4	TO-252-4L	Tape&Reel	2500	13"	16mm

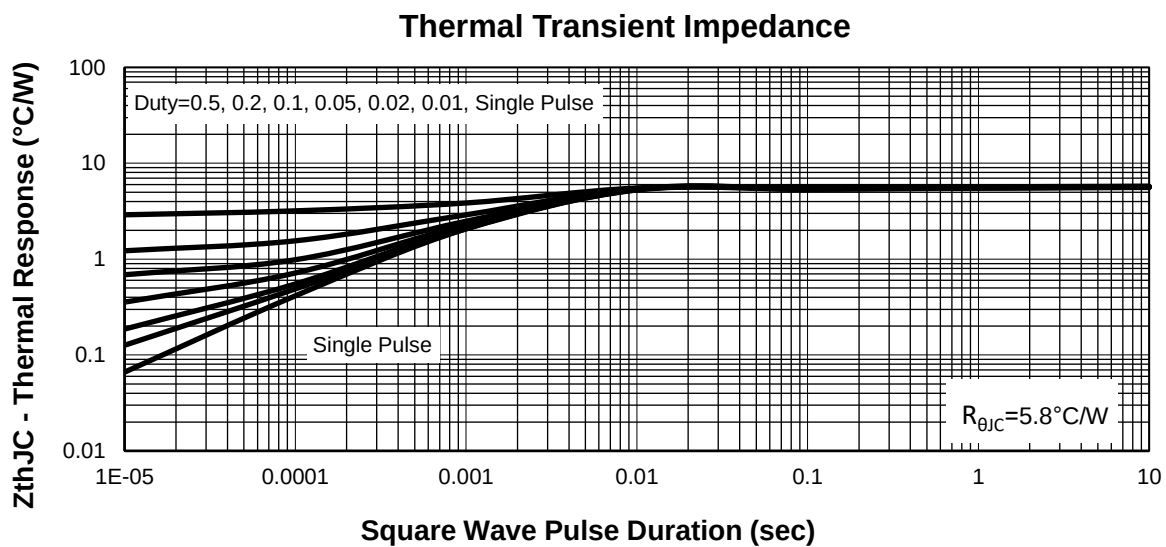
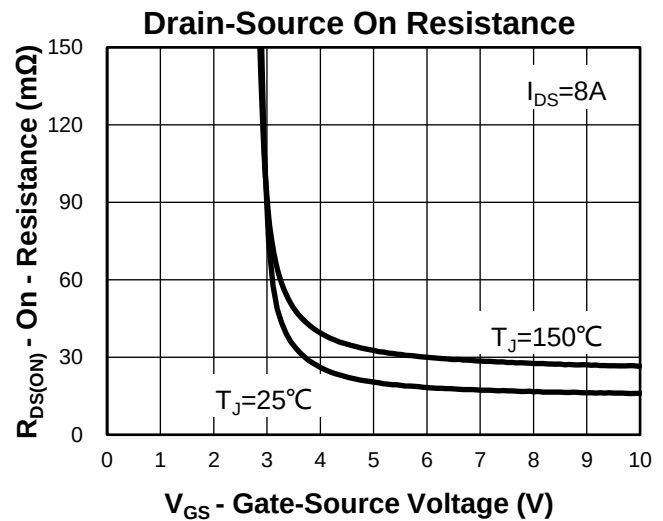
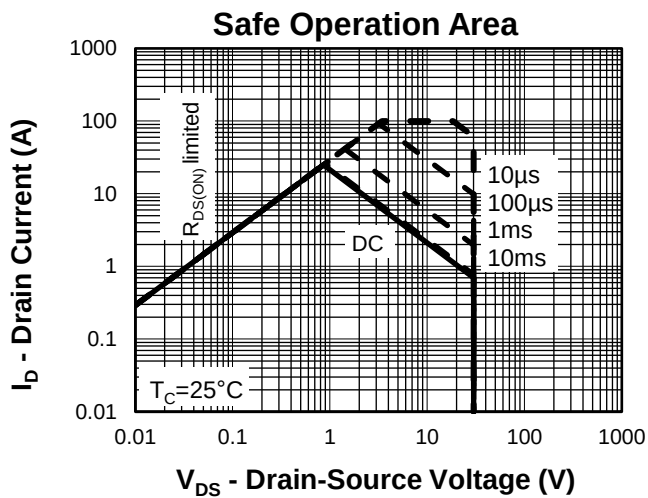
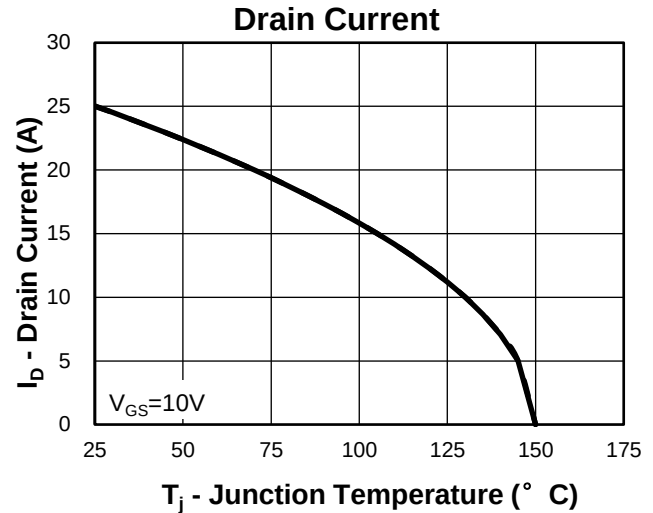
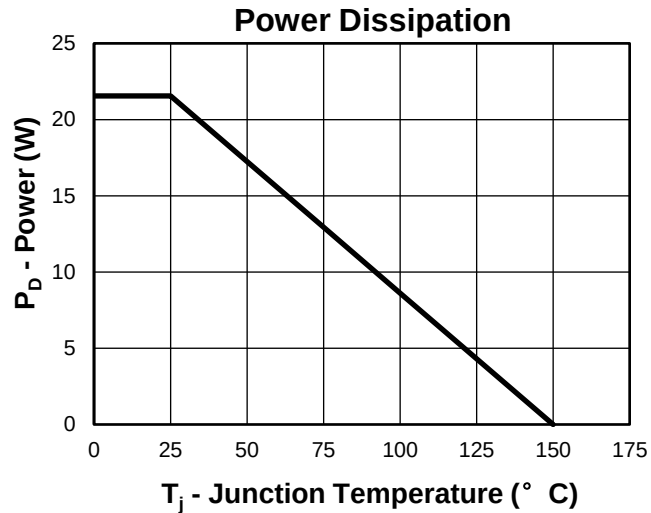


1st Line: Kwansemi LOGO, Kwansemi Code(KS)

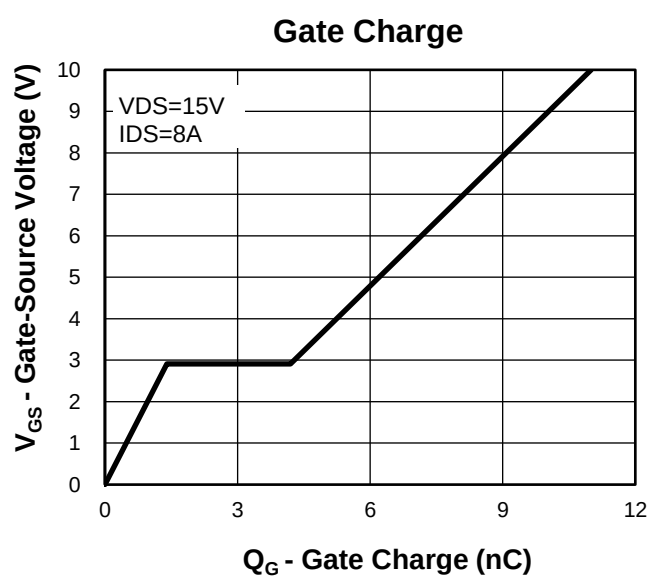
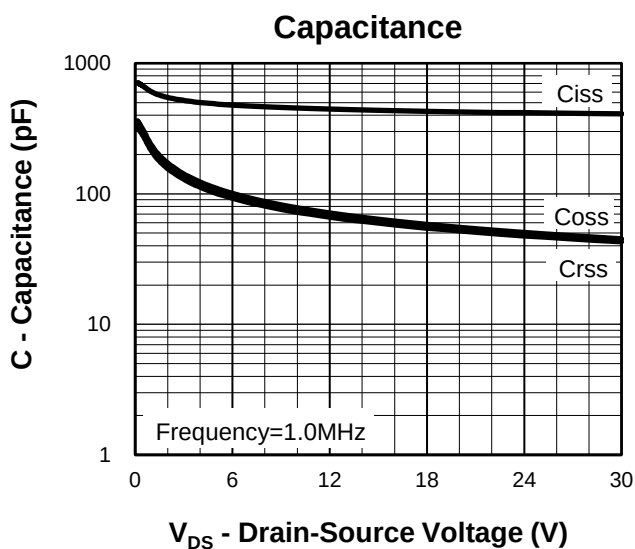
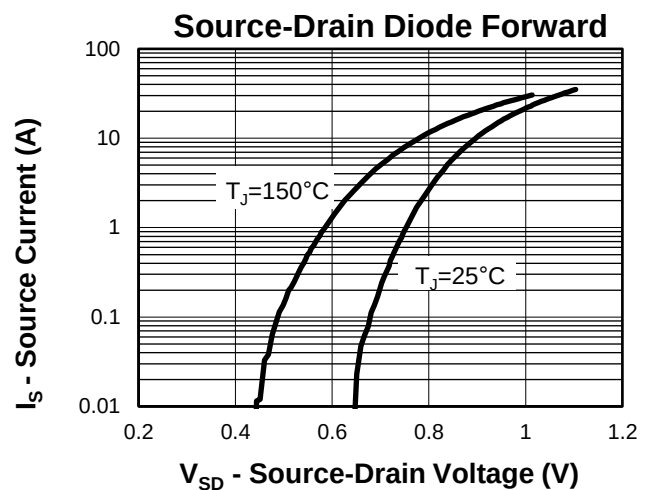
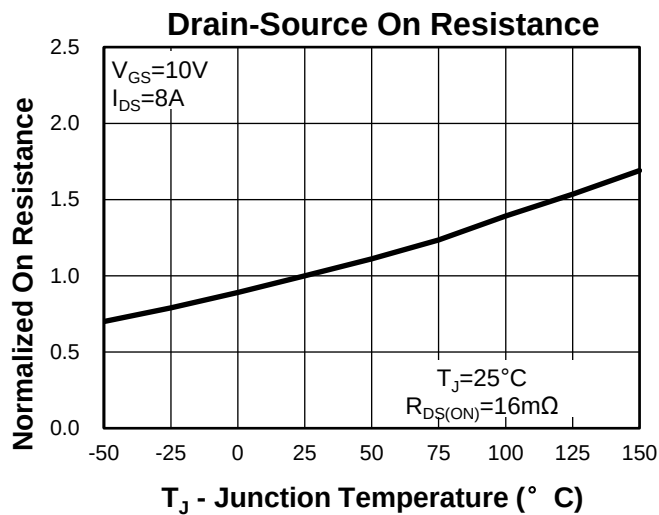
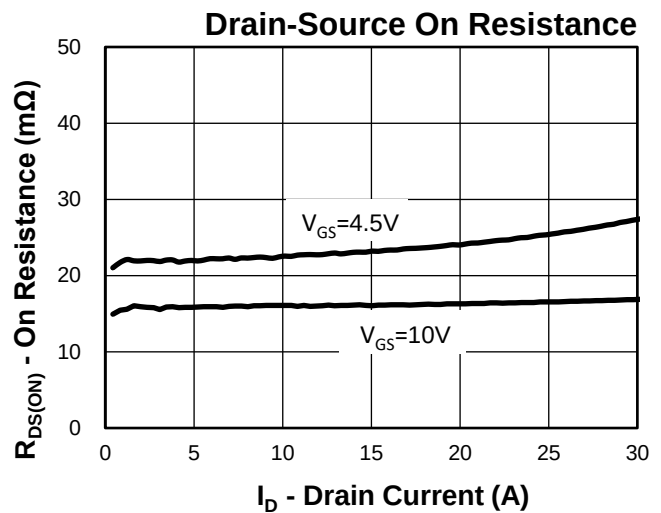
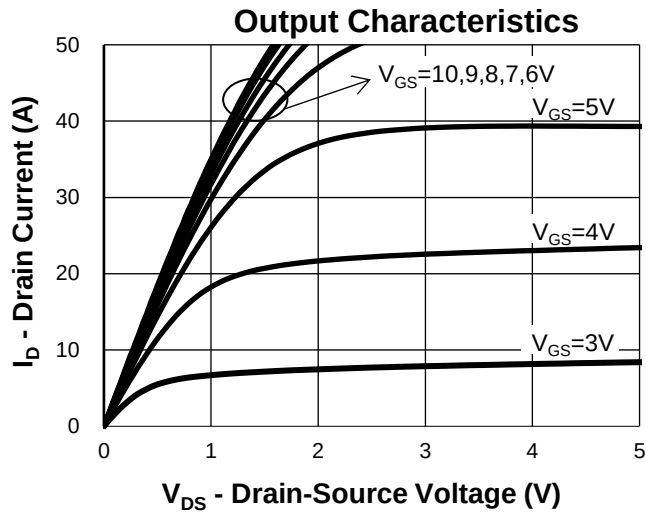
2nd Line: Part Number(3637)

3rd Line: Lot Number(YWWXXX)

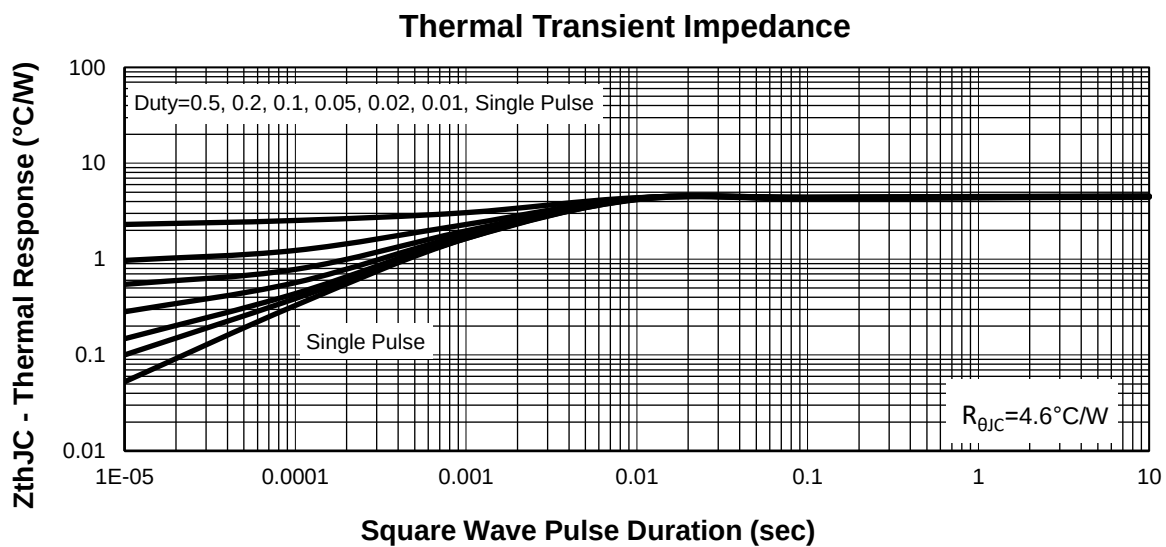
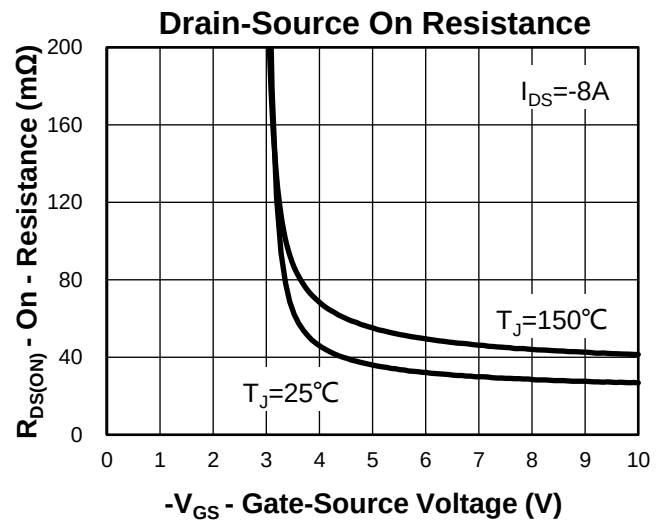
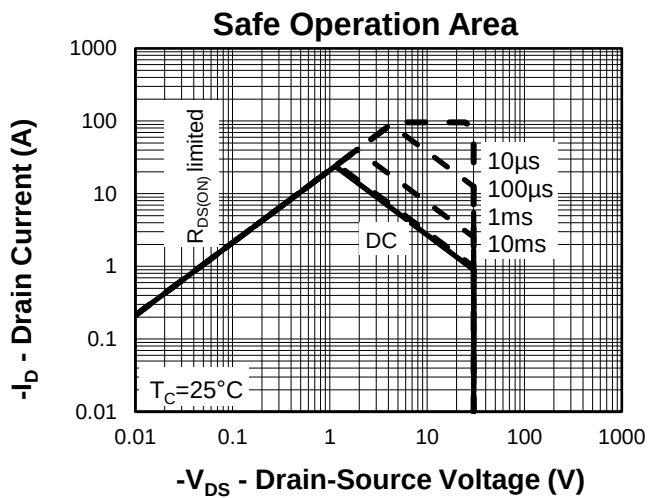
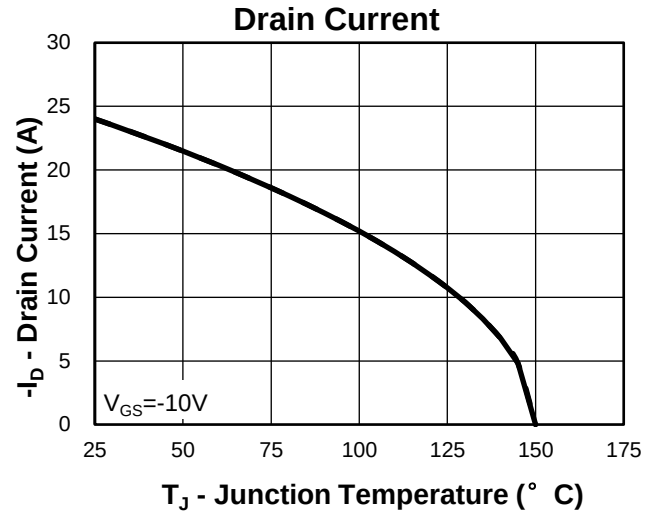
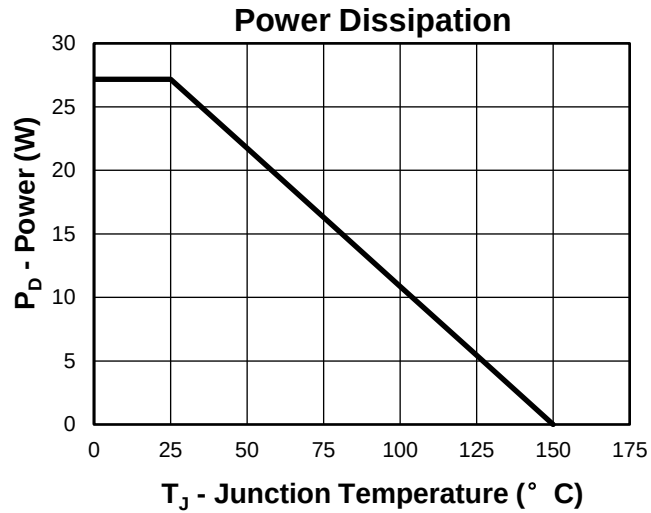
Typical Characteristics(N-Channel)



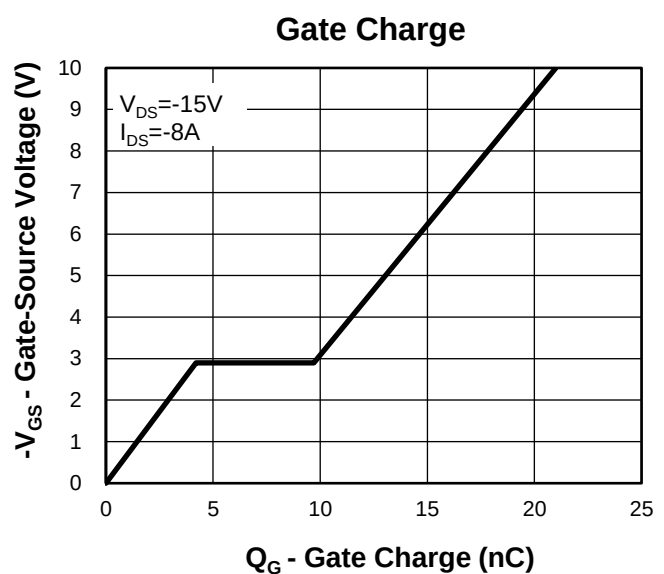
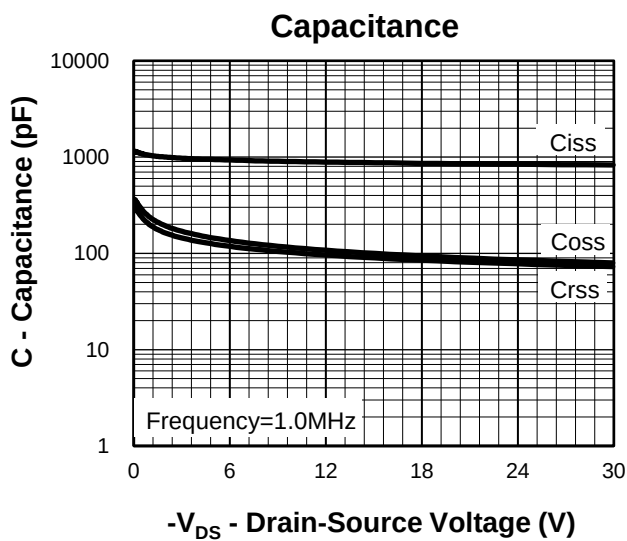
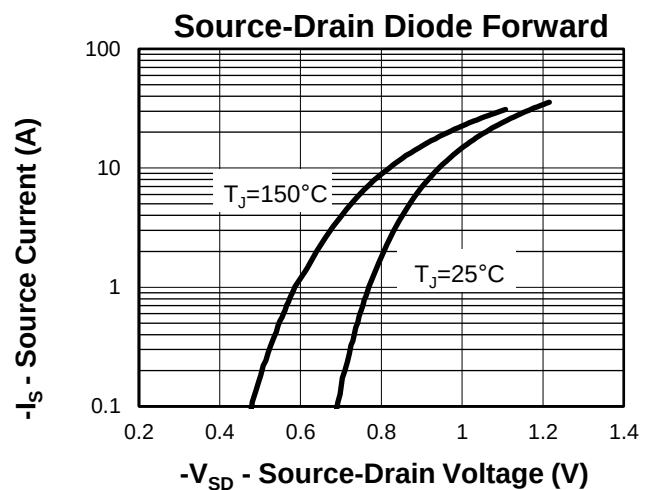
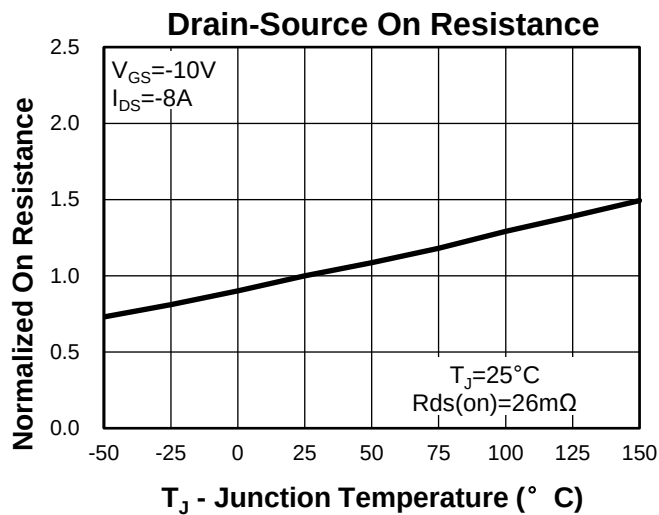
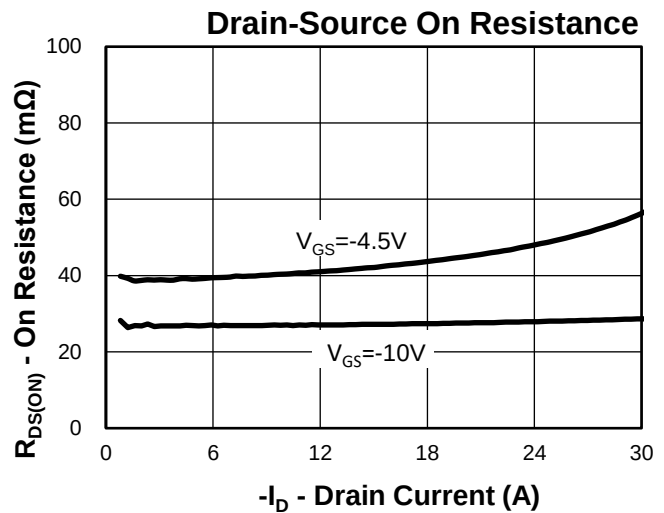
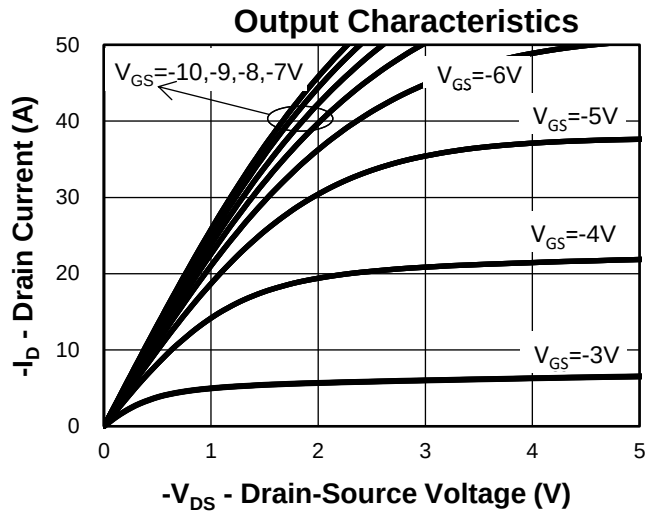
Typical Characteristics(N-Channel)

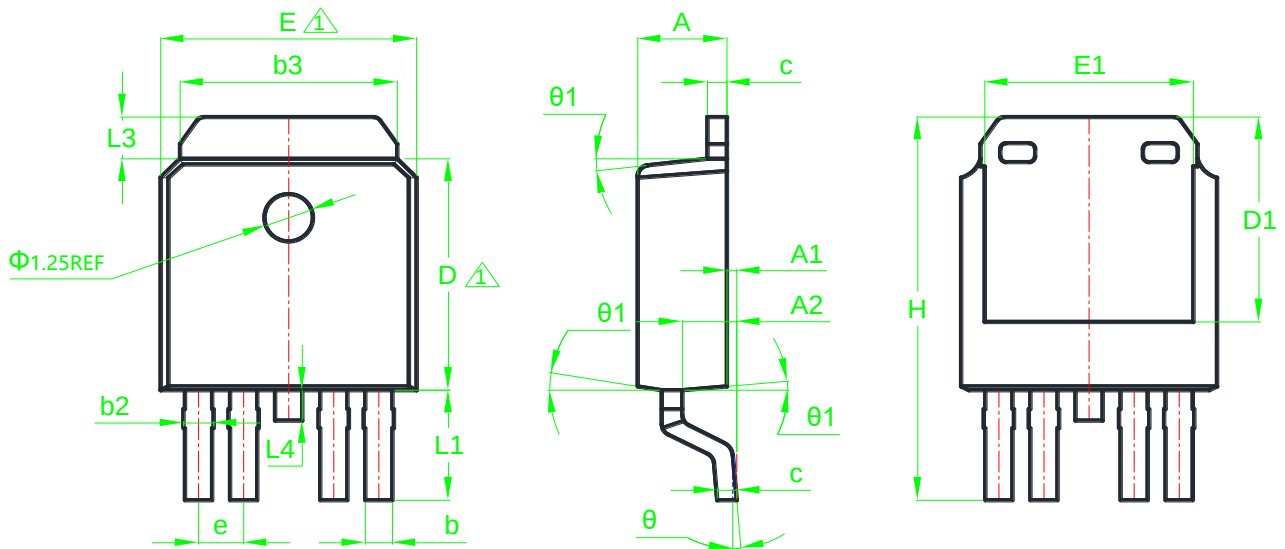


Typical Characteristics(P-Channel)



Typical Characteristics(P-Channel)

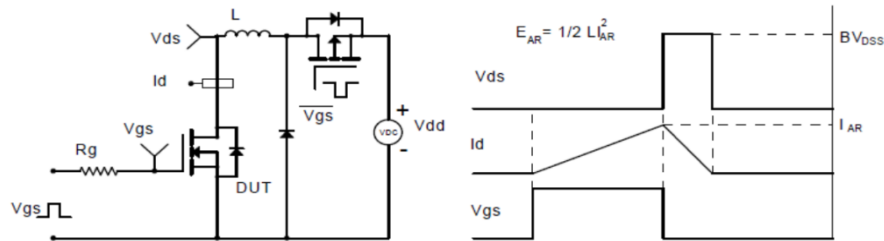


Package Information
TO-252-4L


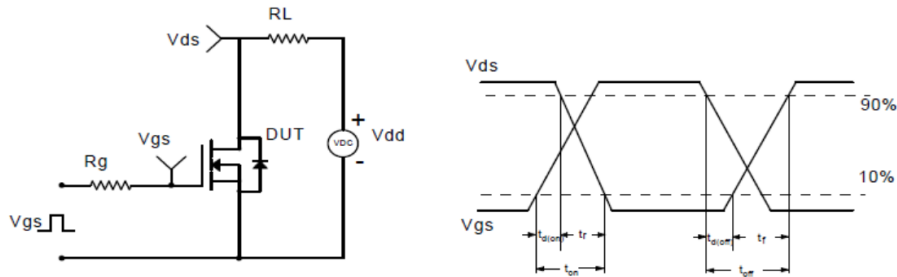
SYMBOL	MM			INCH			SYMBOL	MM			INCH		
	MIN	NOM	MAX	MIN	NOM	MAX		MIN	NOM	MAX	MIN	NOM	MAX
A	2.20	2.30	2.40	0.087	0.091	0.094	e	1.27BSC			0.050BSC		
A1	0.00	0.15	0.25	0.000	0.006	0.010	E	6.40	6.60	6.80	0.252	0.260	0.268
A2	0.90	1.00	1.10	0.035	0.039	0.043	E1	3.81	*	*	0.150	*	*
b	0.40	0.50	0.60	0.016	0.020	0.024	H	9.40	*	10.20	0.370	*	0.402
b2	0.45	0.60	0.80	0.018	0.024	0.031	L1	2.40	2.70	3.00	0.094	0.106	0.118
b3	5.10	5.30	5.50	0.201	0.209	0.217	L3	0.90	1.05	1.20	0.035	0.041	0.047
c	0.45	0.50	0.60	0.018	0.020	0.024	L4	0.45	*	1.20	0.018	*	0.047
D	5.40	*	6.25	0.213	*	0.246	θ	0°	*	10°	0°	*	10°
D1	4.57	*	*	0.180	*	*	θ1	5°	*	9°	5°	*	9°

 Dimensions D and E do not include mold flash protrusions or gate burrs.

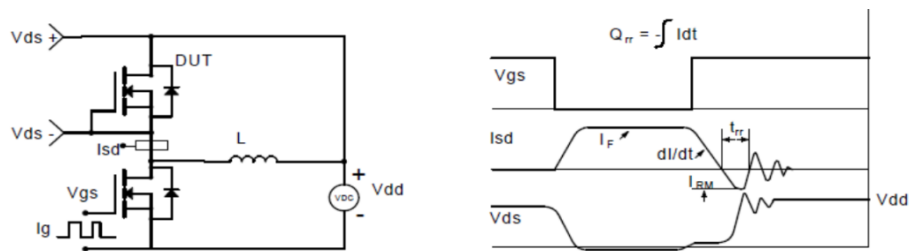
Avalanche Test Circuit and Waveforms(N-Channel)



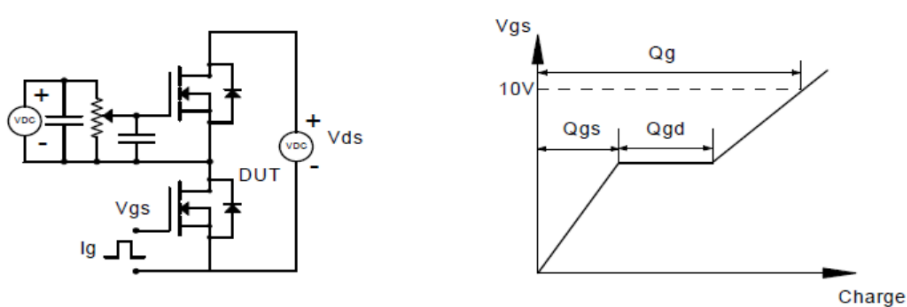
Switching Time Test Circuit and Waveforms(N-Channel)



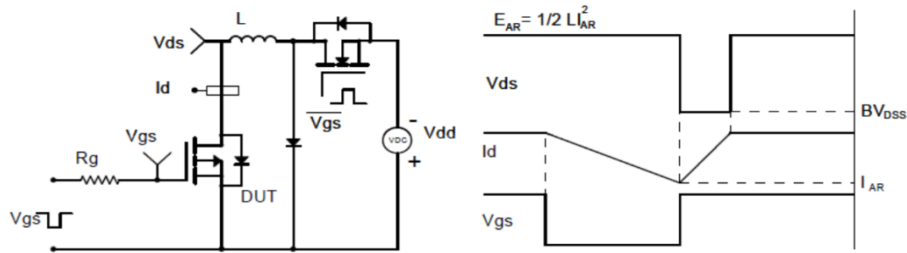
Diode Recovery Test Circuit and Waveforms(N-Channel)



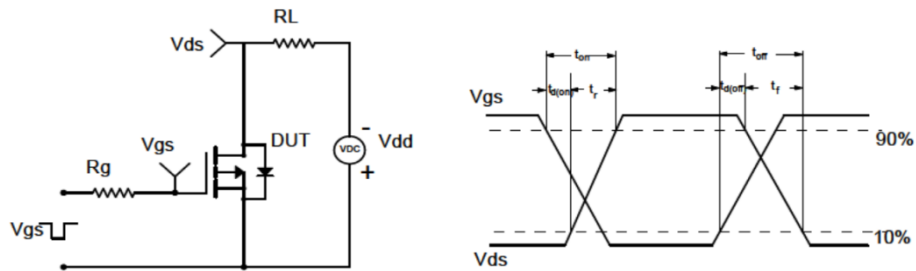
Gate Charge Test Circuit and Waveform(N-Channel)



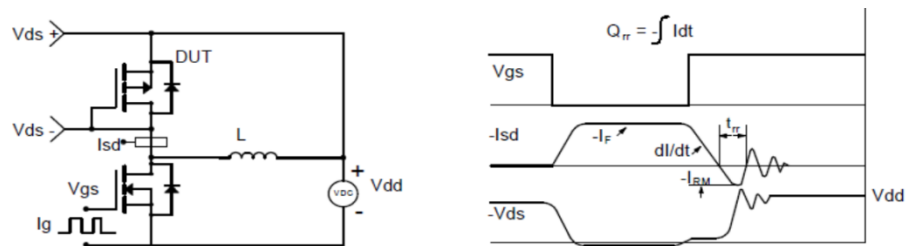
Avalanche Test Circuit and Waveforms(P-Channel)



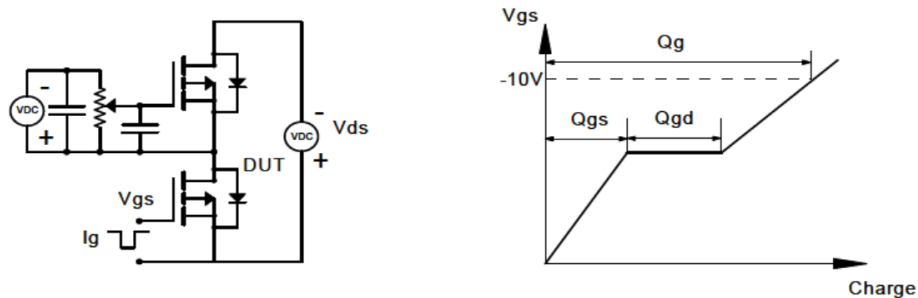
Switching Time Test Circuit and Waveforms(P-Channel)



Diode Recovery Test Circuit and Waveforms(P-Channel)



Gate Charge Test Circuit and Waveform(P-Channel)



Customer Service

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