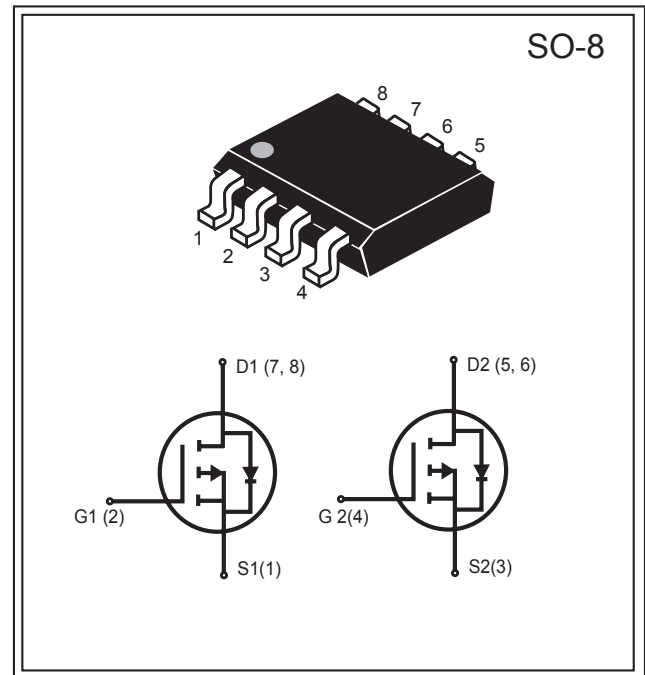




Product Summary		
V <sub>DS</sub> (V)	I <sub>D</sub> (A)	R <sub>DS(ON)</sub> (mΩ) Max
- 30V	- 5.5A	45 @V <sub>GS</sub> = - 10V
		70 @V <sub>GS</sub> = - 5V
		80 @V <sub>GS</sub> = - 4.5V



### FEATURES

- ◆ Super high dense cell design for low R<sub>DS(ON)</sub>.
- ◆ Rugged and reliable.
- ◆ Surface Mount package.

ABSOLUTE MAXIMUM RATINGS (T <sub>A</sub> = 25°C unless otherwise noted)			
Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V <sub>DS</sub>	- 30	V
Gate-Source Voltage	V <sub>GS</sub>	±25	V
Drain Current-Continuous @ T <sub>J</sub> = 125°C	I <sub>D</sub>	- 5.5	A
-Pulsed <sup>b</sup>	I <sub>DM</sub>	- 25	A
Drain-Source Diode Forward Current <sup>a</sup>	I <sub>S</sub>	- 1.7	A
Maximum Power Dissipation <sup>a</sup>	P <sub>D</sub>	2	W
Operating Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	- 55 to 150	°C
THERMAL CHARACTERISTICS			
Thermal Resistance, Junction-to-Ambient <sup>a</sup>	R <sub>θJA</sub>	62.5	°C/W

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P-Channel Electrical Characteristics (TA = 25°C unless otherwise noted)						
Parameter	Symbol	Condition	Min	Typ <sup>c</sup>	Max	Unit
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> = - 250 μA	-30			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = - 24V, V <sub>GS</sub> =0V			- 1	μA
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>GS</sub> = ±25V, V <sub>DS</sub> =0V			±100	nA
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> = - 250 μA	- 1	- 1.9	- 2.5	V
Drain-Source On-State Resistance	R <sub>DS(ON)</sub>	V <sub>GS</sub> = - 10V, I <sub>D</sub> = - 6.0A		38	45	mΩ
		V <sub>GS</sub> = - 5V, I <sub>D</sub> = - 4.0A		60	70	
		V <sub>GS</sub> = - 4.5V, I <sub>D</sub> = - 3.0A		70	80	
On-State Drain Current	I <sub>D(ON)</sub>	V <sub>DS</sub> = - 5V, V <sub>GS</sub> = - 10V	- 20			A
Forward Transconductance	g <sub>FS</sub>	V <sub>DS</sub> = - 15V, I <sub>D</sub> = - 5.3A		10		S
Input Capacitance	C <sub>ISS</sub>	V <sub>DS</sub> = - 15V		700	800	pF
Output Capacitance	C <sub>OSS</sub>	V <sub>GS</sub> =0V		130		
Reverse Transfer Capacitance	C <sub>RSS</sub>	f=1.0MHz		90		
Turn-On Delay Time	t <sub>D(ON)</sub>	V <sub>DD</sub> = - 15V,		10		ns
Rise Time	t <sub>r</sub>	I <sub>D</sub> = - 1A,		8		
Turn-Off Delay Time	t <sub>D(OFF)</sub>	V <sub>GEN</sub> = - 10V,		40		
Fall Time	t <sub>f</sub>	R <sub>GEN</sub> =6Ω,		30		
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = -15V, I <sub>D</sub> = -5.3A, V <sub>GS</sub> = -10V		16	20	nC
		V <sub>DS</sub> = -15V, I <sub>D</sub> = -5.3A, V <sub>GS</sub> = -4.5V		9		
Gate-Source Charge	Q <sub>gs</sub>	V <sub>DS</sub> = - 15V, I <sub>D</sub> = - 6A,		3		
Gate-Drain Charge	Q <sub>gd</sub>	V <sub>GS</sub> = - 10V		3.5		
Diode Forward Voltage	V <sub>SD</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> = - 1.0A		- 0.75	- 1.2	V

Notes :

- a. Surface Mounted on FR4 Board, t ≤ 10 sec.
- b. Pulse Test : Pulse Width ≤ 300 μs, Duty Cycle ≤ 2%.
- c. Guaranteed by design, not subject to production testing.

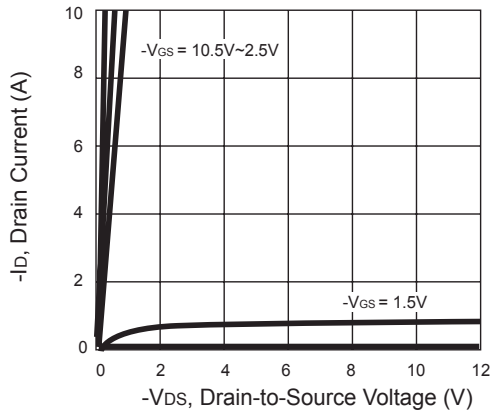


Figure 1. Output Characteristics

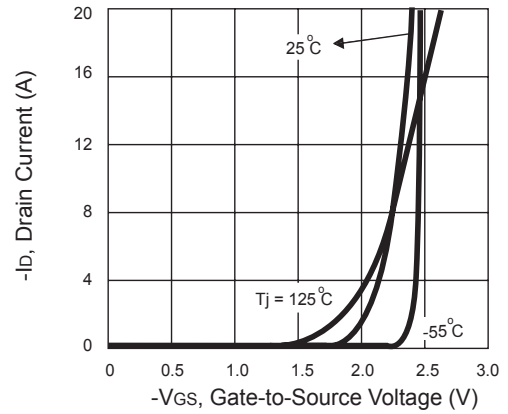


Figure 2. Transfer Characteristics

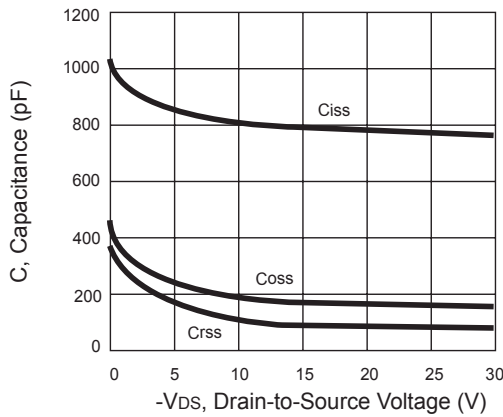


Figure 3. Capacitance

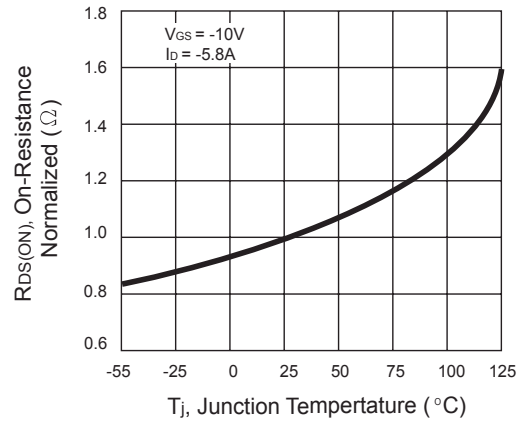


Figure 4. On-Resistance Variation with Temperature

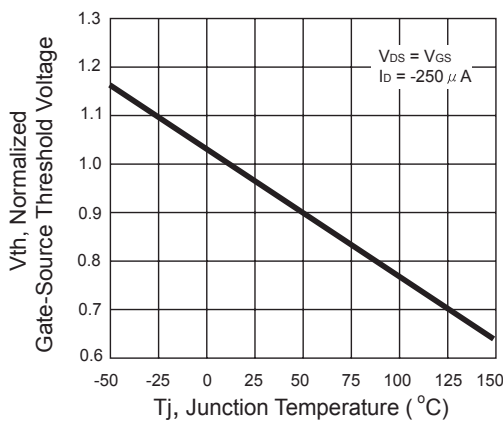


Figure 5. Gate Threshold Variation with Temperature

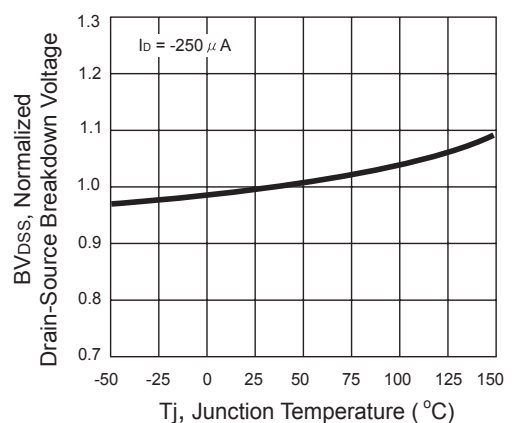
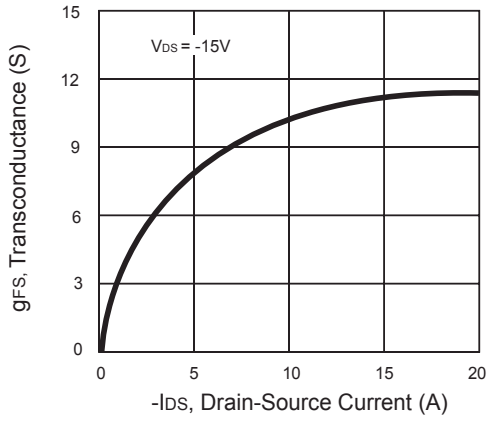
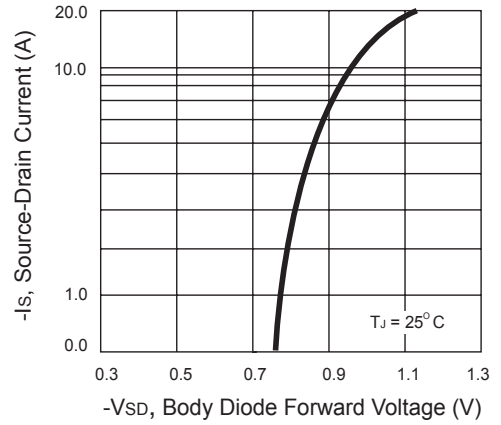


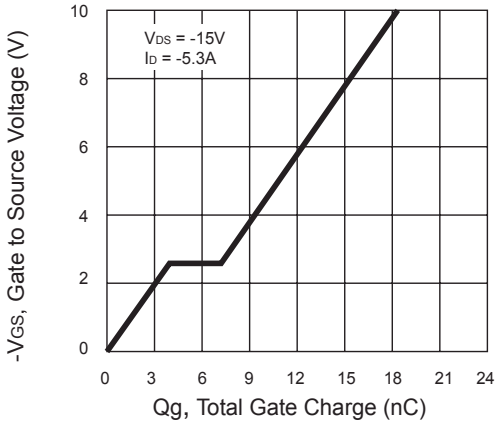
Figure 6. Breakdown Voltage Variation with Temperature



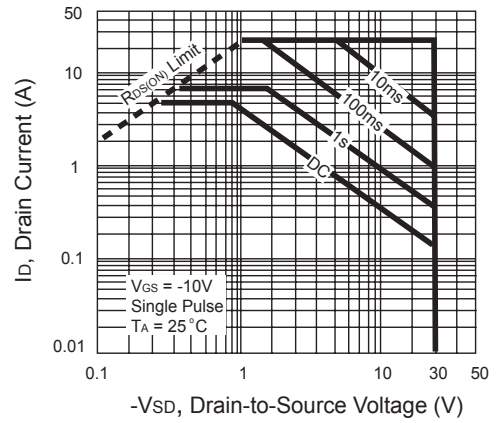
**Figure 7. Transconductance Variation with Drain Current**



**Figure 8. Body Diode Forward Voltage Variation with Source Current**



**Figure 9. Gate Charge**



**Figure 10. Maximum Safe Operating Area**

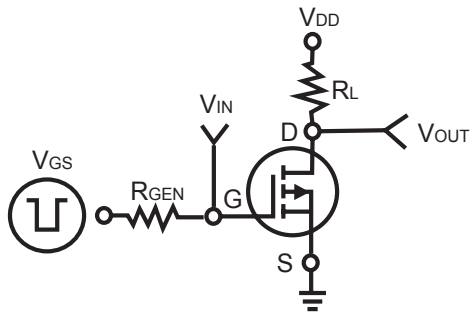


Figure 11. Switching Test Circuit

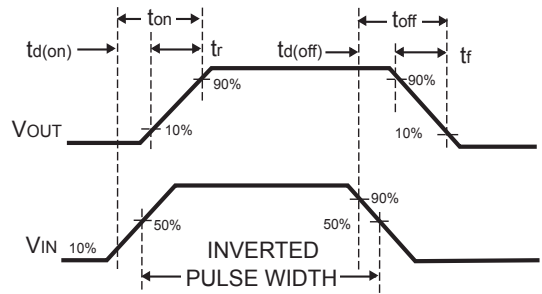


Figure 12. Switching Waveforms

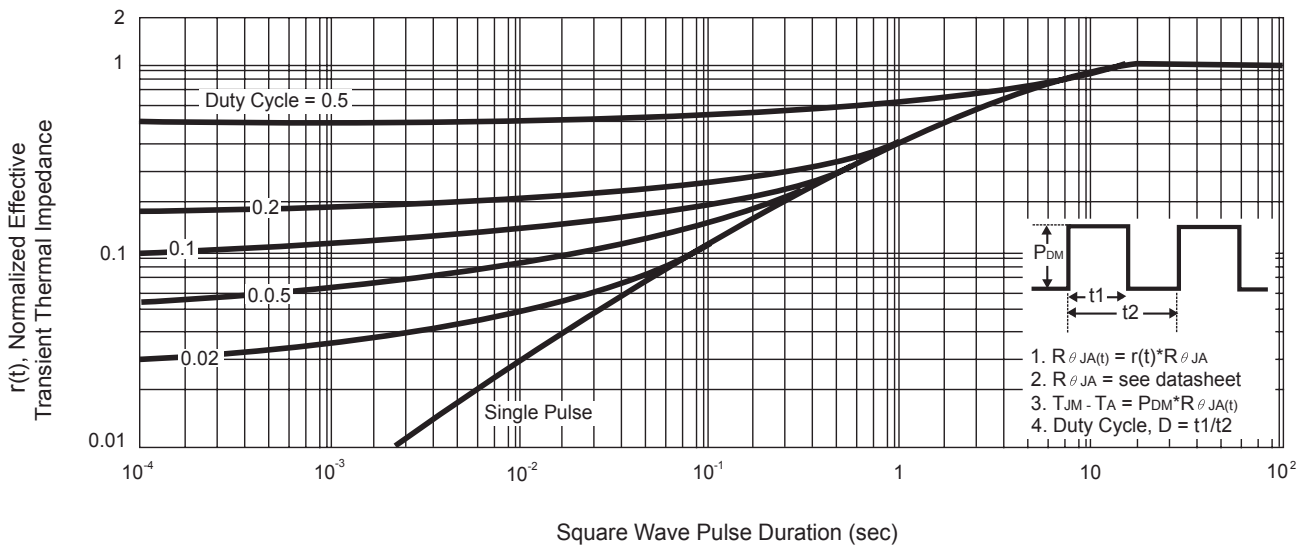
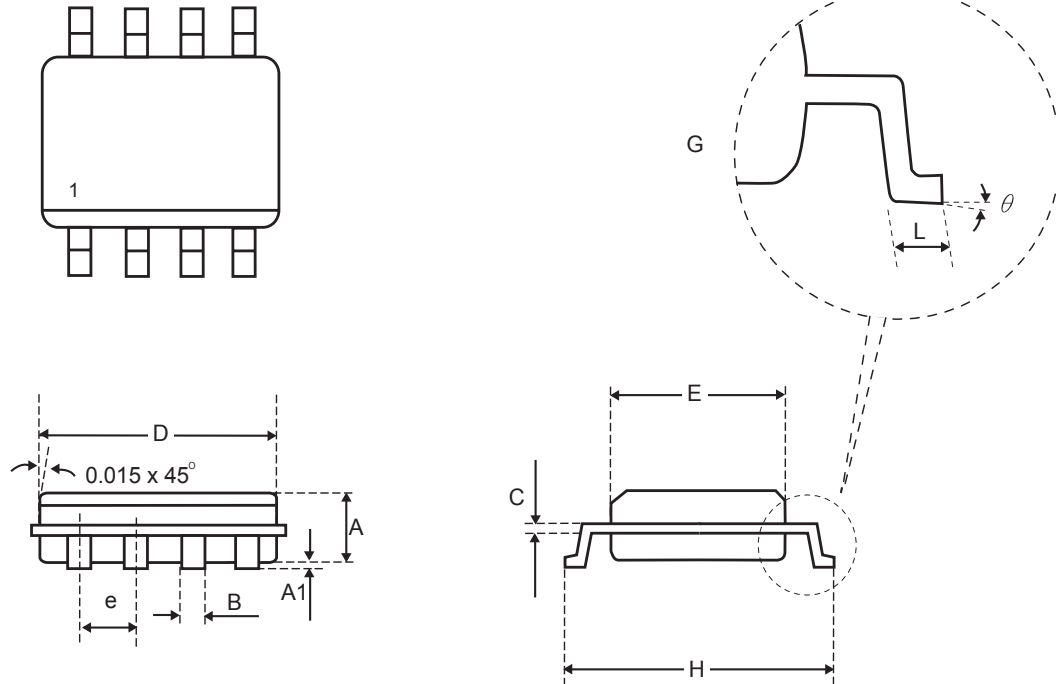


Figure 13. Normalized Thermal Transient Impedance Curve



## Package Outline Dimensions

SO-8



SYMBOLS	MILLIMETERS		INCHES	
	Min.	Max.	Min.	Max.
A	1.35	1.75	0.053	0.069
A1	0.10	0.25	0.004	0.010
B	0.41 Typ.		0.016 Typ.	
C	0.20 Typ.		0.008 Typ.	
D	4.80	4.98	0.189	0.196
E	3.81	3.99	0.150	0.157
e	1.25 Typ.		0.05 Typ.	
H	5.79	6.20	0.228	0.244
L	0.41	1.27	0.016	0.050
$\theta$	0°	8°	0°	8°

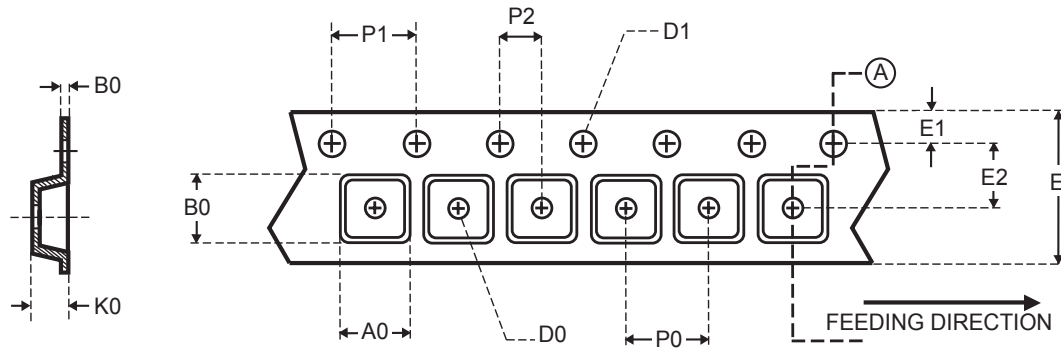
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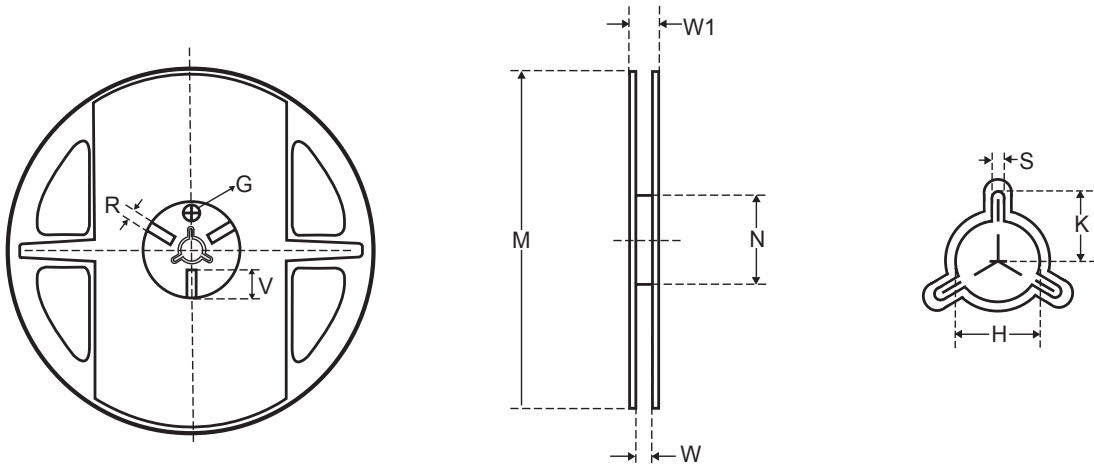
## Carrier Tape & Reel Dimensions

SO-8



Package	A0	B0	K0	D0	D1	E	E1	E2	P0	P1	P2	T
SOP 8N 150 mil	6.40	5.20	2.10	$\phi 1.50$ (Min.)	$\phi 1.50$ +0.10 -0.10	12.00 $\pm 0.30$	1.75	5.50 $\pm 0.05$	8.00	4.00	2.00 $\pm 0.05$	0.30 $\pm 0.05$

UNIT : mm



Tape size	Reel Size	M	N	W	W1	H	K	S	G	R	V
12mm	$\phi 330$	330 $\pm 1$	62 $\pm 1.5$	12.4 $\pm 0.2$	16.8 -0.4	$\phi 12.75$ $\pm 0.15$	-	2.0 $\pm 0.15$	-	-	-

UNIT : mm