

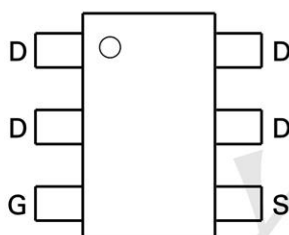
Product Summary

- 60V/-3A
 $R_{DS(ON)} = 88m\Omega$ (Typ) @ $V_{GS} = -10V$
 $R_{DS(ON)} = 111m\Omega$ (Typ) @ $V_{GS} = -4.5V$
- Reliable and Rugged
- Lead Free and Green Devices Available (RoHS Compliant)

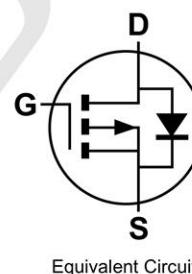
Application

- DC-DC Converters.
- Load Switch.
- Power Management.

Package and Pin Configuration



Circuit diagram



Marking: 564P

Absolute Maximum Ratings ($T_A = 25^\circ C$ unless otherwise noted)

Characteristic			Symbol	Value	Unit
Drain-Source Voltage			V_{DSS}	-60	V
Gate-Source Voltage			V_{GS}	± 20	V
Continuous Drain Current	$V_{GS} = -10V$	(Note 6)	I_D	-3	A
		$T_A = +70^\circ C$ (Note 6)		-2.4	
		(Note 5)		-2.3	
Pulsed Drain Current	$V_{GS} = -10V$	(Note 7)	I_{DM}	-13.6	A
Continuous Source Current (Body Diode)			I_S	-2.5	A
Pulsed Source Current (Body Diode)			I_{SM}	-13.6	A

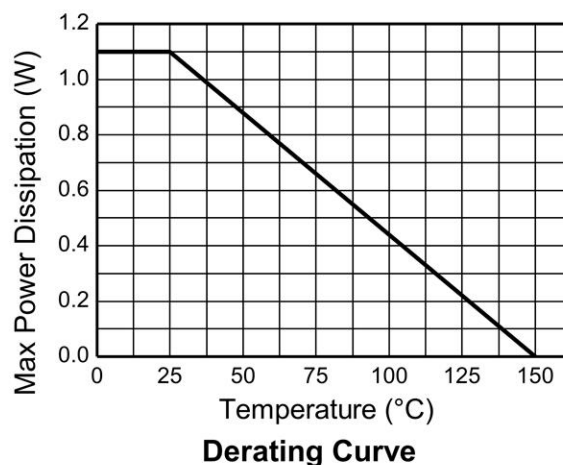
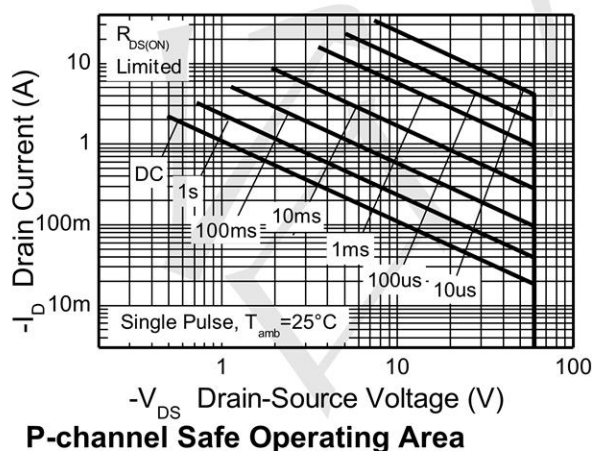
Thermal Characteristics (@ $T_A = +25^\circ C$, unless otherwise specified.)

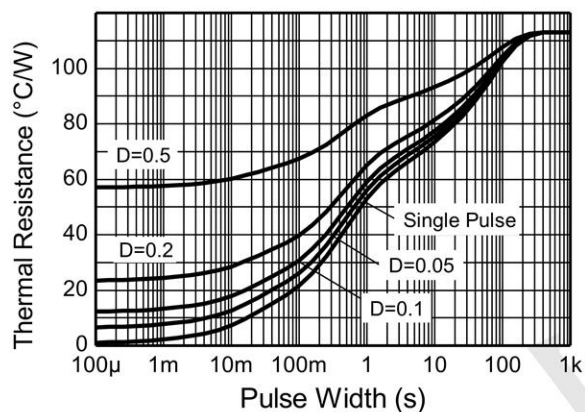
Characteristic		Symbol	Value	Unit
Power Dissipation Linear Derating Factor	(Note 5)	P_D	1.1	W
	(Note 6)		8.8	
	(Note 6)		15.4	
Thermal Resistance, Junction to Ambient	(Note 5)	$R_{\theta JA}$	113	$^\circ C/W$
	(Note 6)		65	
Operating and Storage Temperature Range		T_J, T_{STG}	-55 to +150	$^\circ C$

Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

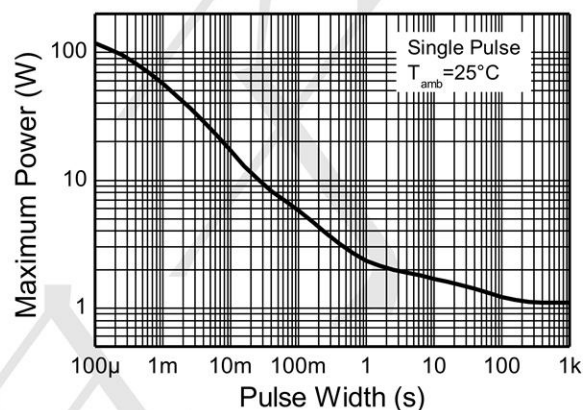
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition	
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage	BV _{DSS}	-60	—	—	V	I _D = -250μA, V _{GS} = 0V	
Zero Gate Voltage Drain Current	I _{DSS}	—	—	-1	μA	V _{DS} = -48V, V _{GS} = 0V	
Gate-Source Leakage	I _{GSS}	—	—	±100	nA	V _{GS} = ±20V, V _{DS} = 0V	
ON CHARACTERISTICS							
Gate Threshold Voltage	V _{GS(th)}	-1	-1.5	-3	V	I _D = -250μA, V _{DS} = V _{GS}	
Static Drain-Source On-Resistance (Note 8)	R _{DS (ON)}	—	88	100	mΩ	V _{GS} = -10V, I _D = -3A	
			111	140		V _{GS} = -4.5V, I _D = -1.9A	
Forward Transconductance (Notes 8 & 9)	g _{fs}	—	4.7	—	S	V _{DS} = -15V, I _D = -2.3A	
Diode Forward Voltage (Note 8)	V _{SD}	—	-0.85	-0.95	V	I _S = -2A, V _{GS} = 0V	
Reverse Recovery Time (Note 9)	t _{rr}	—	25.1	—	ns	I _F = -1.7A, di/dt = 100A/μs	
Reverse Recovery Charge (Note 9)	Q _{rr}	—	27.2	—	nC		
DYNAMIC CHARACTERISTICS (Note 9)							
Input Capacitance	C _{iss}	—	637	—	pF	V _{DS} = -30V, V _{GS} = 0V f = 1MHz	
Output Capacitance	C _{oss}	—	70	—	pF		
Reverse Transfer Capacitance	C _{rss}	—	53	—	pF		
Total Gate Charge (Note 10)	Q _g	—	9.8	—	nC	V _{GS} = -5V	V _{DS} = -30V I _D = -2.3A
Total Gate Charge (Note 10)	Q _g	—	17.7	—	nC	V _{GS} = -10V	
Gate-Source Charge (Note 10)	Q _{gs}	—	1.6	—	nC		
Gate-Drain Charge (Note 10)	Q _{gd}	—	4.4	—	nC		
Turn-On Delay Time (Note 10)	t _{D(on)}	—	2.6	—	ns	V _{DD} = -30V, V _{GS} = -10V I _D = -1A, R _G ≅ 6Ω	
Turn-On Rise Time (Note 10)	t _r	—	3.4	—	ns		
Turn-Off Delay Time (Note 10)	t _{D(off)}	—	26.2	—	ns		
Turn-Off Fall Time (Note 10)	t _f	—	11.3	—	ns		

Typical Performance Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise Specified)

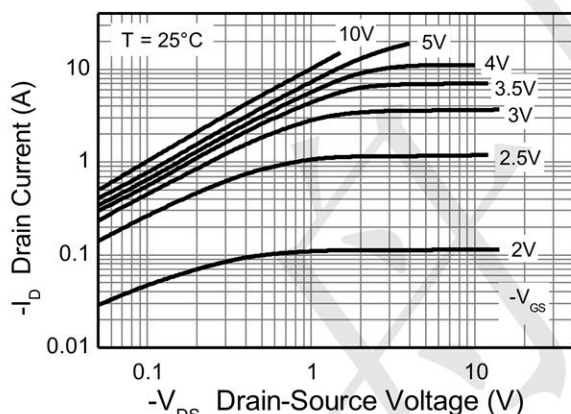




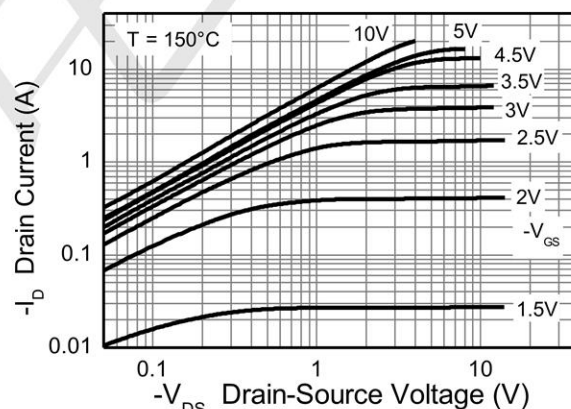
Transient Thermal Impedance



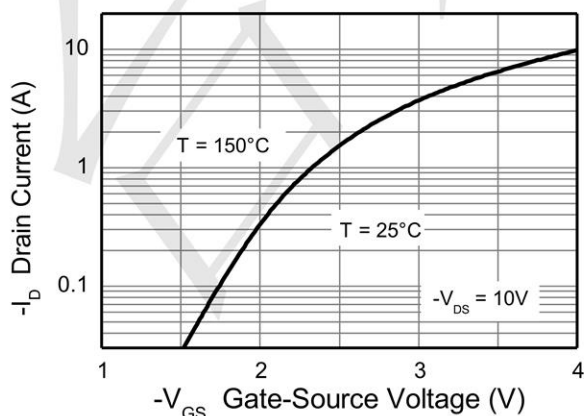
Pulse Power Dissipation



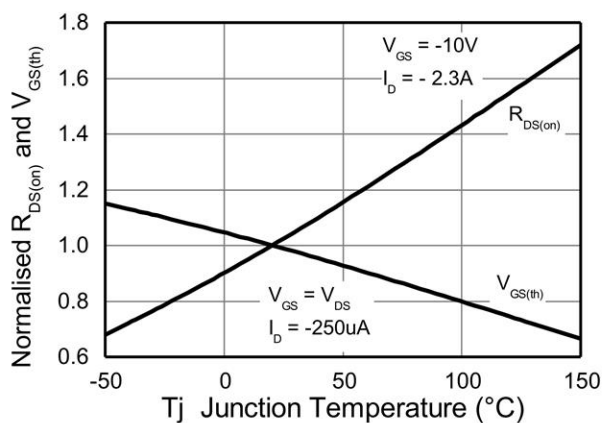
Output Characteristics



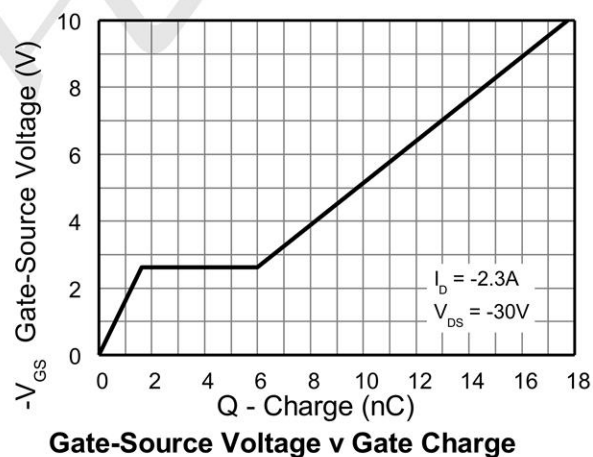
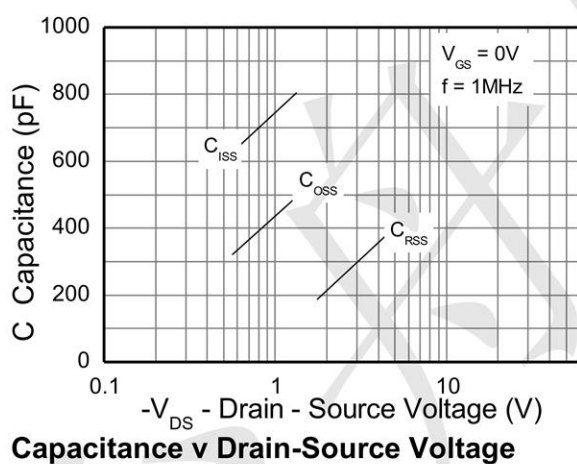
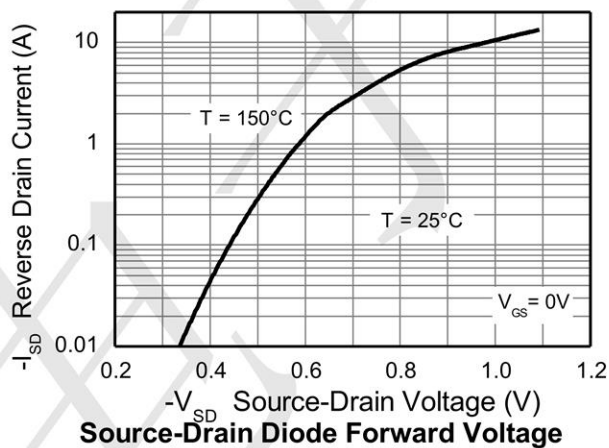
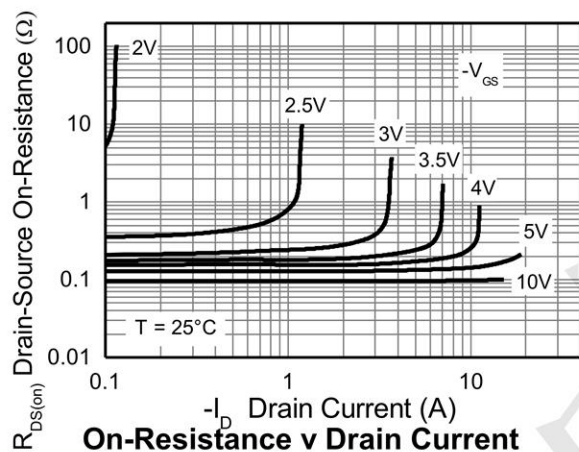
Output Characteristics



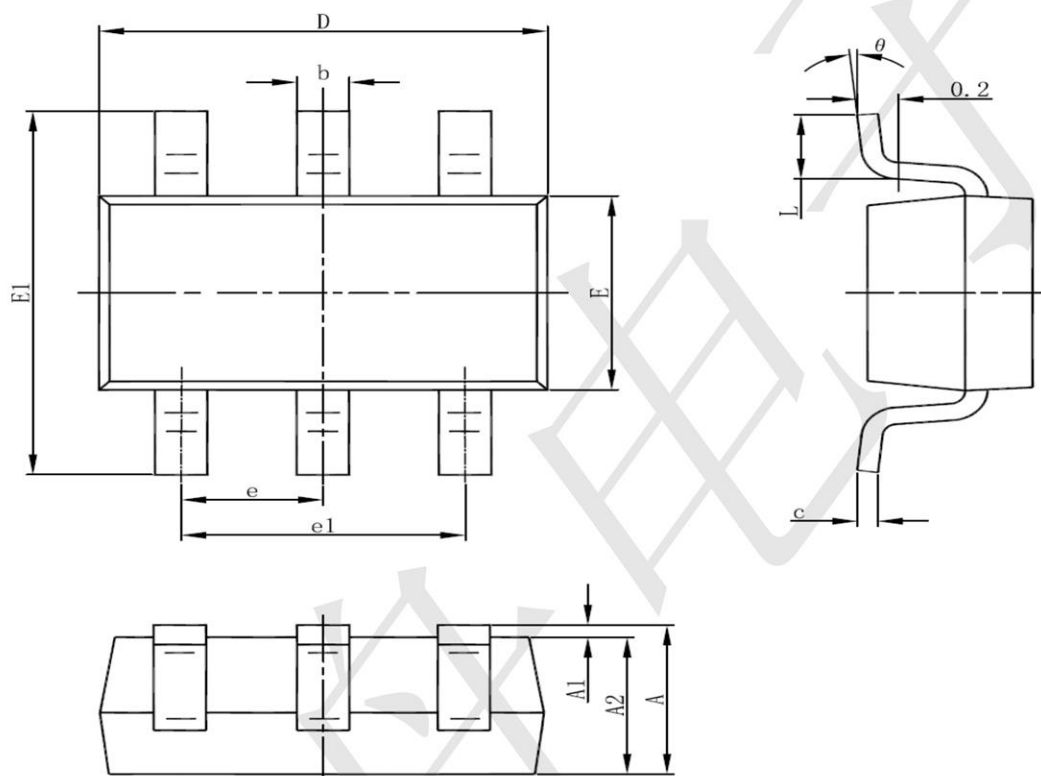
Typical Transfer Characteristics



Normalised Curves v Temperature



SOT23-6 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°